

Examining the Effects of an Attribution Retraining Intervention on the Attributions and
Engagement of Alternative School Students

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Dedication

For William Braam, deserving of your own book. I hope that your story and the consequences of your resilience live on infinitely.

Abstract

The purpose of the present study was to examine the effectiveness of an intervention designed to increase effortful attributions in high school students enrolled in an alternative high school at risk for failure to graduate. Pre-test and post-test self-report surveys on student attributions and engagement were collected and analyzed prior to and after the administration of an attribution retraining intervention for a treatment and control group. An additional 5-question survey on educational background was collected to better describe and understand the educational experience of the sample of students. The attribution and engagement surveys suggested that there were no significant effects of the attribution retraining intervention on student attributions or engagement. A significant relationship existed between perceived family support for learning, and students' history of consistent attendance in school. Limitations and implications for future research are discussed.

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Chapter 1

Introduction

The last two years, I have been given the privilege and the powerful opportunity to work with a group of students on the edge of multiple educational and life outcomes. These students will experience substantially different trajectories—as I begin to see at the very end of their time in public education. Every fundamental educational question that educators consider is magnified in our setting, where our kids encompass the widest range of academic and behavioral skills, educational backgrounds and experiences, and current life circumstances. We are an alternative school.

In our school, with our students, we start at square one: meeting personal needs (Maslow, 1943). Most staff at our school are very aware that our program first and foremost provides breakfast and lunch, warmth, safety, and a consistent and predictable day. Sometimes, when the weather is warmer, our only opportunity to check in with a student is during lunch; it is the only time of day that some students will come. Still, I am fascinated by our students each day they make it to school. As an educator who encourages these students to attend, I constantly wonder how and why they actually do.

Chronic absenteeism, is defined as students that have missed 10 percent or more of the school year, or in the previous year missed a month or more of school (Balfanz & Byrnes, 2012). Based on this definition, chronic absenteeism is most prevalent among low-income students. The highest rates of chronic absenteeism are seen in the youngest and oldest students, with students attending most regularly in third, fourth, and fifth grades. Rates of chronic absenteeism rise through middle and high school, with seniors often having the highest rate of all. In our alternative program, our goal for each student

is 80% attendance, or 4 out of 5 days a week. This is the estimated amount of time needed for students to complete their academic work and graduate on time.

Graduation rates across the nation have indicated year after year that there are certain groups of students that have lower rates of graduation (Stetser & Stillwell, 2014). According to the US Department of Education, data from the 2010–2011 and the 2011–2012 school years indicated that American Indian/Alaska Native, Black, and Hispanic students had 4-year graduation rates below the national average. The same was true for economically disadvantaged students, students with limited English proficiency, and students with disabilities. During these two school years, the nation’s public high school event dropout rate—an estimate of students who left high school without earning a high school diploma or passing the General Educational Development tests—remained constant at 3.3 percent.

After many, many conversations and counseling sessions with the students in our alternative school, there seems to be awareness and acceptance that a diploma has future value. All of the students will most certainly tell you that they *want* to earn their diploma. However, these students often believe that the value of the diploma only applies to others, not themselves—like many valued resources in the community (Lerman, 1997; Barton, 2005).

This belief illustrates a disconnect for our students somewhere between motivation and engagement. Teacher concerns, by far, most frequently relate to students’ inability to link their own behaviors to their educational outcomes; their ability to “take responsibility.” Past research suggests that when teachers perceive student failure to be the result of controllable factors, they respond with punitive and retributive feedback,

intending to punish a prior behavior instead of preventing and impacting future behaviors (Covington & Omelich, 1979). By definition based on our students' enrollment in our program, all of them have failed in the regular education setting. After reviewing file after file, it appears that the majority of these students have experienced significant failure in the regular education setting time after time. But exactly where is the break down?

I can best understand this interplay between the learning of values and engaging in the actions that align with those values as a snowball effect under the lens of the ecological framework (Bronfenbrenner, 1977). From an ecological perspective, these students' failures have not been contained to the school setting. From what I know and see, our students regularly experience failure in the community by the time they are in our program. They attend court hearings for a variety of offenses like truancy, violating the terms of their probation, stealing, and illegal possession of weapons. Many of the students are homeless and highly mobile for a variety of reasons; they are kicked out of their homes, they choose to stay elsewhere, or their families do not have enough resources for stable housing. These student experiences are often a normal part of an alternative school setting –this setting tends to separate out at-risk, low income, and minority students from the general education setting (Reyes, 2006).

The context in which these students' achievement motivation and engagement behaviors develops, and the way that educational and other levels of systems respond, seem to be silo-ing our students, perpetuating the feedback loop between negative outcomes, lack of motivation, and disengagement. We fight to interrupt this process in our school.

Research supports that students enrolled in alternative schools are at particular risk for a lack of motivation and disengagement (Reyes, 2006). Studies of minority students suggest that negative school experiences cause many students to develop maladaptive patterns of attributions (“sense of personal control” regarding achievement) (Ross & Broh, 2000). Such negative school experiences have been shown to encourage students’ use of self-handicapping strategies and lead to disengagement from school and higher dropout rates (Midgley, Arunkumar, & Urdan, 1996; Ross & Broh, 2000). These students entered systems in which performance, not progress, in relation to others is the measure of their worth, and which from a very early age they were at a disadvantage in relation to others. These findings indicate a need for studies to look closer at how minority students’ attributions about achievement affect educational outcomes, and how these attributions can be supported to increase more positive outcomes for minority students.

In addition, a review of research on attribution retraining supports that more research should be conducted on 1) attribution retraining in the K-12 school setting, and 2) with high school level students, grades 9 – 13, and 3) with students enrolled in alternative programs and schools.

Study Purpose

The purpose of the present study was to examine the effectiveness of an attribution retraining intervention on a particular sample of at-risk high school students. The present study aimed to improve effortful attributions in a sample of primarily racial minority students who met one of 12 High School Graduation Initiative codes and were enrolled in an alternative school.

Research Questions

1. Do students display a difference in attributions among and between gender, age, attendance rates, enrollment code, and past educational experiences?
2. To what degree do students display an increase in effortful attributions when administered an attribution retraining intervention?
3. To what degree do students display an increase in engagement when administered an attribution retraining intervention?
4. To what degree do students display a difference in effortful attributions and engagement between the intervention and control group after administration of the attribution retraining intervention?

Chapter 2

Review of Literature

Achievement motivation is defined as an individual's desire for significant accomplishment, mastering of skills, and control over standards for learning (McClelland, 1953). Achievement motivation is valued because it predicts many student outcomes that educators “universally desire” (Roeser, 2004). These outcomes include task enjoyment (Mueller & Dweck, 1998; Deci & Ryan, 1985; Renninger, 2000), positive affect (Rhodewalt & Vohs, 2005), use of learning strategies (Berger & Karabenick, 2011), and measures of academic achievement (Meece, Anderman, & Anderman, 2006; Schunk & Pajares, 2005). More recently, researchers and educators have recognized that achievement motivation is a desired outcome in its own right (Boekaerts, 2009). As a result, achievement motivation is an important area of children’s functioning to be evaluated by psychologists, educators, and other school-based professionals (Stinnett, Oehler-Stinnett, & Stout, 1991). Further, studies suggest that problems related to student motivation are common in schools, and school personnel desire more knowledge about how to directly address these problems (Cleary, 2009). Throughout its history, the theoretical foundation and approach to studying achievement motivation has seen many adaptations.

“A ‘good’ theory should be able to explain diverse phenomena across a range of disparate situations” (Graham & Weiner, 1996, p.64). Over time, broad theories of motivation have been abandoned in favor of more specific micro theories, which include strong components of cognition (such as causal attributions) and individual differences (Graham & Weiner, 1996). More recently, these micro theories have expanded to include

contextual factors, such as the teacher and the classroom (Wentzel & Wigfield, 2009). The most current research on achievement motivation is based on combinations of these micro theories (Conley, 2012; Wentzel & Wigfield, 2009; Elliot & Dweck, 2005). Most often, these theories include attribution theory, self-efficacy theory, expectancy-value theory, and achievement goal theory. These theories serve as the basis for the study of several important and related constructs. These constructs include motivation, volition, behavior regulation, engagement and effort.

The following sections of this literature review aim to provide an understanding of achievement motivation by defining and comparing the above constructs. This is followed by an explanation of the four major theories of achievement motivation: attribution theory, self-efficacy theory, expectancy-value theory, and achievement goal theory. This understanding of the constructs and theories of achievement motivation is necessary in order to evaluate and improve upon current conceptual models, research, and interventions. A discussion of theories will be followed by a review of research at the student, classroom, and school-wide levels examining the relationship between achievement motivation and behavioral outcomes including student achievement and effort.

Next, sections begin to focus on two theories: achievement goal theory and attribution theory. These two theories are chosen because they have seen a large amount of theoretical and empirical activity through the present time. They are also chosen because researchers have not reached consensus on the conceptual models that serve as their basis.

Additional sections will consider the contextual approach to achievement goal theory, specifically considering the role of the teacher in attribution retraining. In addition, the specific context of the alternative school and the students they serve will be discussed as they relate to gaps in the literature.

Constructs Central to Achievement Motivation

The ability to examine the influence of variables related to achievement motivation relies on the clarification of involved constructs. Those discussed here are not intended to cover an exhaustive list related to achievement motivation, but include those that are commonly referenced in achievement motivation research (Wentzel & Wigfield, 2009). In addition, while these constructs are considered unique relative to one another, they do include overlapping components and should not be thought of as entirely independent. As a result, it is important that each construct be clearly defined. The constructs covered below are motivation, volition, behavioral regulation, engagement, and effort.

Motivation can be defined as the study of *why* people think and behave as they do (Graham & Weiner, 1996). An alternate definition clarifies factors of thinking and behaving, defining motivation as “that which *influences* the initiation, direction, magnitude, perseverance, continuation, and quality of goal-directed behavior (Maehr & Zusho, 2009, p.77; Maehr & Meyer, 1997). It reflects the energy that results from both innate needs and needs acquired from an individual’s interactions with the environment (Deci & Ryan, 1985). Motivation differs from volition, behavior regulation, engagement, and effort because it represents an individual’s internal thoughts and desires without the

requisite of focusing those thoughts and desires on behavioral intentions or actual outward behaviors (Heckhausen & Kuhl, 1985).

Volition differs from motivation in its focus on behavioral intentions. This construct is composed of two such processes labeled self-maintenance and goal maintenance (Kuhl & Fuhrmann, 1998). The first of these, maintaining the self, refers to actualizing the appropriate integrated representation of personal needs and beliefs supporting a healthy lifestyle. Goal maintenance, on the other hand, refers to the ability to focus on a target goal and ignore competing motivations. Effective school practices are those that help to maintain students' goal-directed behavioral intentions when faced with competing goals (Corno, 1993). Behavior regulation can be differentiated from volition as it is, more broadly, the *concurrent* combination of both self-maintenance and goal maintenance to achieve short- and long-term goals. Uniquely, volition refers to the action individuals take to *alternate* strategically between the two maintenance systems.

Behavioral regulation, or self-regulated learning (SRL), is defined as students' deliberate use of higher level learning strategies to direct and control concentration to achieve a goal (Zimmerman, 1990; 2000; 2011). SRL is considered a multidimensional construct that includes metacognitive, motivational, and behavioral components (Zimmerman, 2011). It is important to note that while SRL is goal-directed, it does not follow predictably from expectations or desired success. For example, SRL is often utilized when an individual lacks hope or desire, but persists regardless (Corno, 2001). Corno's work on SRL emphasizes that it is not exclusively cognitive or motivational without the specific influence of volition. Volition may best be conceptualized as one component of SRL.

Similarly, engagement is considered by some to be a meta-construct in the field of education; a conceptual model representing many separate lines of research (Fredericks, Blumenfeld, & Paris, 2004). Engagement is currently defined as an individual's active involvement in a task (Reeve, Jang, Carrell, Jeon, & Barch, 2004). Appleton, Christenson, Kim, and Reschly (2006) differentiated engagement from motivation, stating that while engagement is active involvement in a task, motivation refers to underlying cognitive processes. The implications of this emphasis represent the shift in research in achievement motivation as a whole, a shift from internal characteristics to contextual factors (Sinclair, Christenson, Lehr, & Anderson, 2003).

Engagement as the active involvement between a person and a task is an important part of effort. However, a recent definition of effort suggests that it is most appropriately conceptualized as its own construct (Braam, 2010). Within this study, effort was defined based on teacher perception, as the controllable, goal-directed cognitive and behavioral manifestations of attention. Many current models of engagement support the independence of effort as a construct within motivation. For example, Skinner, Marchand, Furrer, and Kindermann (2008) separated engagement into four types: emotional engagement, emotional disaffection, behavioral engagement and behavioral disengagement. Among these types, and similar to other conceptualizations of effort, the construct is categorized within behavioral engagement, and is therefore one part of the meta-construct of engagement.

With the similarities and overlap between these motivational constructs it is difficult to imagine their relationships with one another. See Figure 1 below for one explanation of these relationships. As the boxes move from left to right, motivational

cognitions and behaviors become more complex. For example, the behavioral intentions that define volition cannot occur until the development of the driving internal thoughts of motivation. Within the components included in this figure, effort is an end state; however, engagement and effort interact cyclically with cognitions and behaviors in the model, creating a motivational pathway resulting in continuous cumulative effects. With varying contexts, any one construct will have a different degree of emphasis in the pathway. For an explanation of the constructs in the left-most box of Figure 1 (self-efficacy, attributions, goals and interests, and values and costs), see the sections on the theoretical basis for achievement motivation below.

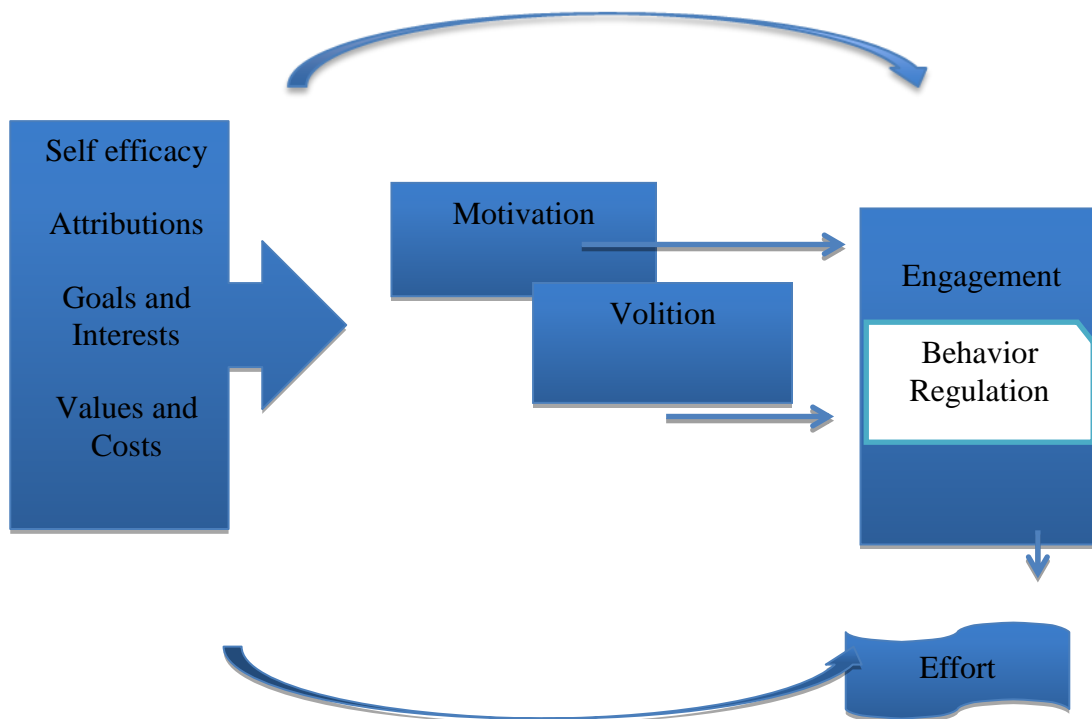


Figure 1. A conceptualization of the central constructs in achievement motivation.

Theoretical Basis for Examining Achievement Motivation

Attribution theory

Attribution theory, one of the most commonly used theories to support the study of motivation and achievement, examines motivation by identifying an individual's responses to why a particular outcome occurred (also referred to as "self-theories;" Gendolla & Koller, 2001). The outcome of achievement is most commonly attributed to ability and effort (Graham & Williams, 2009).

Research on attribution theory supports that achievement-related effort is affected by an individual's attributions regarding locus, stability and controllability. Locus refers to whether an individual attributes an outcome to an internal or external cause. Stability is defined by an individual's idea of a cause as constant or varying over time. Lastly, controllability reflects the degree to which an individual believes his or her volition will

affect an outcome. As it relates to these terms, achievement effort is conceptualized as “...internal, but unstable, and controllable. Failure attributed to insufficient effort usually indicates a personal characteristic that is modifiable by one’s own volitional behavior” (Graham & Williams, 2009; p. 14). In other words, effort is something that comes from within a person, but the amount of effort that an individual puts forth in any given situation is within his or her control.

Another central element of attribution theory is that an individual can make attributions in regards to his or her own behavior and outcomes, referred to as an *intrapersonal* theory of motivation, or in regards to others’ behavior and outcomes, referred to as an *interpersonal* theory of motivation (Weiner, 2000). This difference is noted as individuals may display different patterns of attributions with respect to their own outcomes, in comparison to the patterns of attributions they make about other individuals’ outcomes.

Finally, attribution theory is dichotomized in another important way. Dweck (2006) reported that individuals’ attributions can be categorized into two groups: fixed mindset (also known as entity theorists) and growth mindset (also known as incremental theorists).

Fixed mindset is a label given to individuals who view ability and intelligence as stable; unchanged through effort and learning. Growth mindset, on the other hand, describes individuals who view ability and intelligence as a malleable attribute that can grow with effort and learning. An individual’s mindset therefore, largely affects his or her value of effort—those with a fixed mindset believe that effort is useless and are therefore less likely to put forth effort, while those with a growth mindset believe that

effort is important and can affect the outcome of a task, and are therefore more likely to put forth effort (Dweck, 2006; Blackwell et al., 2007).

Self-efficacy theory

The components of self-efficacy theory, based on Bandura's social cognitive theory (1986), have been shown to affect the amount of effort students put forth in school, as well as their resulting achievement. The basic idea of self-efficacy theory postulates that individuals pursue the activities and courses of action for which they are confident they will succeed (Schunk & Pajares, 2009). Likewise, individuals avoid activities in which they are not confident they will do well. Unlike attribution theory, which defines achievement motivation based on attributions regarding locus, stability, and controllability; self-efficacy theory defines achievement motivation based on personal factors, behaviors, and environmental factors. Within this theory, these are the factors that will influence the level of achievement motivation and the resulting effort individuals will put forth.

According to Bandura (1997), self-efficacy information is obtained through four sources: actual achievement/performances (students' interpretation of these performances as successes or failures), vicarious experiences (i.e., how well other students perform), forms of social persuasion (i.e., teacher encouragement and feedback), and physiological indexes (i.e., anxiety and stress). It is clear that the role of contextual factors in self-efficacy information is a crucial one.

Within self-efficacy theory, beliefs about self-efficacy have an effect on achievement motivation in a variety of ways (McAlister, Perry, & Parcel, 2008). First, students' personal factors and behaviors associated with self-awareness and regulation

are related to their academic achievement (Felson, 1984). In addition, teacher perceptions, actions, and language can influence these student behaviors, which in turn affects student achievement motivation. Lastly, in addition to student self-efficacy and teacher perception of student achievement behaviors, teachers' own level of self-efficacy can impact their perceptions, actions, and language, which can in turn impact student achievement motivation (Ashton & Webb, 1986; Goddard, Hoy, & Hoy, 2000).

Finally, self-efficacy theory includes the concept of calibration (Pajares & Kranzler, 1995). In the school context, student calibration refers to the alignment of students' self-efficacy and their actual academic performance. Students who are well calibrated are able to accurately judge their academic performance and adjust their self-efficacy accordingly. Teachers can impact this aspect of student self-efficacy and in turn, the amount of achievement motivation and effort students put forth.

Expectancy-value theory

Expectancy-value theory examines motivation in an attempt to explain achievement-related behaviors such as “striving for success, choice among achievement tasks, and persistence”—behaviors that reflect on students' level of achievement motivation and effort (Wigfield, Tonks, & Lutz Klauda, 2009; p. 55). According to Eccles and colleagues (Eccles, 1987, 2005; Wigfield & Eccles, 1992, 2000, 2002), *expectancy* and *value* are direct predictors of these achievement-related behaviors. Within expectancy-value theory, expectancy is defined as students' predictions of how well they will do on a future task, while value is defined as students' desire to engage in a task—depending on various qualities of the task. Teachers play a role in the development of both students' achievement expectancies and values.

When teachers communicate values about achievement-related behaviors, students learn to develop similar values (Anderman & Anderman, 2010). In addition, teacher evaluation of student competencies is a major factor in the development of students' expectancies within an academic setting. Evaluation based on a mastery goal orientation promotes both the expectancy of positive academic outcomes and the value of a particular task in terms of learning. Further, Brophy (1999) stated that two additional factors, or instructional strategies, can increase the intrinsic motivation seen in a mastery goal orientation.

The first factor is described as creating a motivationally optimal match with the learner. This suggests that a student will have high achievement motivation when he or she has some background knowledge related to the task, which then stimulates interest, and when the teacher further encourages this interest. This leads to the second factor, which is described as the choice of content ("personal interest"—see Anderman & Anderman, 2010) and activities ("situational interest") that are or can be perceived as relevant to the learner. Teachers can promote student achievement motivation by providing relevant tasks and explaining how these tasks relate to students' lives, especially outside of the academic setting.

In sum, teachers can promote positive academic outcome expectancies and value of classroom tasks by encouraging a mastery goal environment, and promoting interest by utilizing background knowledge and task relevance. In addition, task value is enhanced when students are provided with choice, or task options, in which they can identify and pursue the specific activities that are of most interest.

Achievement goal theory

According to achievement goal theory, improvement in achievement is the outcome that drives motivation research and resulting intervention (Maehr & Zusho, 2009). As such, achievement goal theorists seek to identify the purposes, or goals, for which individuals engage in achievement related behaviors, such as effort. A distinguishing characteristic of this theory is the belief that identifying *why* individuals are trying to achieve something is more important than identifying *what* individuals are trying to achieve (Urdan & Maehr, 1995). This idea reflects the value of effort, rather than ability in the classroom.

Empirical Support for the Theoretical Underpinnings in Achievement Motivation

Each of the above theories has served as the basis for current research on motivation in the school setting. In the explanations of these theories, it is clear that context plays an important role in each. One example of this is the empirical support for the effects of attributions on achievement motivation.

Achievement motivation can be hindered by misattributions made by students in regards to themselves, and teachers in regards to their students. Specific to an interpersonal perspective, common misattributions result when individuals *overestimate* the role of traits (or have an internal locus) and *underestimate* the role of situational factors (or have an external locus) (Ross, 1997).

Additional support for the impact of attribution theory has focused on Dweck's theory of mindset. For example, Mueller and Dweck (1998) did a series of six studies on the effects of praise for intelligence. Participants were 128 5th graders, 49% from a small Midwestern town and 51% from a large northeastern city. The results suggested that attributing children's performance to intelligence has an undesired impact on children's

overall achievement or performance in comparison to attributing performance to effort. Performance as measured by sets of math problems; task enjoyment, as measured by questions on a 6-point rating scale; and task persistence, also measured by questions on a 6-point rating scale, all decreased significantly when subjects who received ability praise experienced failure on a task. Individuals that received effort praise did not attribute their performance to fixed factors, and task enjoyment, persistence, and performance did not decrease after they experienced a failure.

An individual's mindset is associated with a tendency to exhibit a number of achievement behaviors. A study by Covington and Omelich (1979) examined the responses of 360 undergraduate college students to hypothetical achievement situations. Each situation asked participants to imagine having failed an exam. Hypothetical situations differed based on the amount of effort the students put forth (high or low), and the presence or absence of an excuse. Participants were asked to rate their personal dissatisfaction and public shame with the hypothetical situation they were given. Subjects were then given the same hypothetical situation but were asked to judge it as if they perceived it from a teacher's point of view. Participants decided on the severity of punishment that they perceived appropriate based on three variables: whether the student in the situation was of high or low ability, if the student put forth a high or low level of effort, and the presence or absence of a student excuse. Results indicated that inability attributions, such as those present in individuals with a fixed mindset, as well as negative affect, were greatest in situations where individuals put forth effort and still failed. Shame decreased in situations where individuals put forth little effort and failed, and the failure was attributed less to ability. However, the latter situation induced the most severe

punishments when participants perceived the situations as teachers. In other words, interpersonal attributions of failure as a result of lack of effort were perceived as requiring punishment because the individual was expected to put forth more effort and achieve more. Likewise, when teachers perceive students as high ability, they have higher performance expectations.

Expanding on these findings, Reyna and Weiner (2001) examined attributionally guided interventions as they take place in a school context. This experiment consisted of two studies, the first using 127 undergraduate college students *acting as teachers*, and the second using 40 actual high school teachers. Like Covington and Omelich (1979), participants were given a hypothetical situation regarding student failure in the classroom, but in this case both the college level participants and the high school teachers were asked to create verbal feedback for those students who were unsuccessful. Each situation explained a hypothetical student's ability and their effort in terms of stability (whether the student studied for the test and whether the student generally studies for the class). In both groups--college students and teachers--controllable causes of failure, or a lack of effort in other words, resulted in the use of punitive and retributive feedback, intending to punish a prior behavior instead of preventing future behaviors. When students lacked control over their achievement outcomes, both groups responded with utilitarian feedback, intending to alter the future behavior of the student through the reduction in the likelihood of the unwanted behavior. The stability factor was found to moderate responses. These results suggest that feedback which is beneficial to student learning is given to those students who are perceived as lacking control over their achievement outcomes, perhaps because these students are not perceived as responsible

for poor outcomes. As a result blame is not placed on the student because the teacher believes that the student put forth his or her best effort.

Another study examined the effects of teacher feedback on 56 elementary school students aged 9- to 11-years, all of whom exhibited low mathematic achievement (Schunk, 1981). Half of these children were instructed in the form of modeling of division operations while the other half were given didactic instruction. Instruction was followed by a practice session in which half of the children from each instructional treatment group received effortful attribution feedback for success and difficulty (again, feedback like, “You’re really working hard”). Both instructional strategies increased persistence, accuracy, and perceived efficacy. Effortful attribution feedback itself had no significant effect on any of these things; however, the treatment condition, which included both modeling and effortful attribution feedback, resulted in the greatest congruence between perceived efficacy and actual performance. Schunk suggested that children in this treatment group gained a better understanding of how effort can affect performance, including the limitations of effort on achievement. Expanding on these findings, research based on self-efficacy theory has examined the effect of personal factors and behaviors related to self-awareness and regulation.

For example, Felson (1984), used data from a three-year study of 1,718 male high school students. Over this time, students completed self-appraisals of academic ability and effort. The results of self-appraisals were related to the grades students achieved, and were interpreted as reflecting greater effort by students with positive self-appraisals.

Contextual factors such as teacher self-efficacy also have an effect on student achievement motivation and learning. According to Ashton and Webb (1986),

achievement motivation and achievement outcomes increase with teacher instructional self-efficacy. Consistent with the influence of sociostructural factors included in social cognitive and self-efficacy theories, Goddard, Hoy, and Hoy (2000) expanded on these findings. The authors examined the effect of the collective efficacy of teachers within a school on student achievement. Collective teacher efficacy reflects the "...perceptions of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students" (p. 503). Collective perceptions of efficacy are thought to have effects that are greater than the sum of individual perceptions; the interactive beliefs of teachers within a school forms the social environment related to expectations of teachers' positive effect on students. The researchers collected data from 47 elementary schools in one district. Surveys were administered to teachers—half of each school's teachers received surveys regarding collective efficacy, the social environment in the school, personal teaching efficacy, and trust in colleagues. In addition, the researchers collected student achievement in mathematics and reading. Factor analysis supported the use of a single measure including items about instructional task competency and faculty competency as a whole, to assess a school's collective teacher efficacy. Results suggested that teacher efficacy was positively associated with differences between schools in student achievement in mathematics and reading. Specifically, a one-unit increase in collective teacher efficacy was associated with an increase of more than 40% of a standard deviation in student achievement.

Lastly, research based on several of the theories above supports the importance of mastery versus performance goal orientations on achievement motivation and achievement outcomes. For example, according to Ames (1992), when student

evaluations are made public within the classroom, students compare their own performance to that of their peers. This type of evaluation can have the following consequences when students perceive their performance as inferior: avoidance of risk taking, changes in perception of ability, negative affect directed toward the self, and use of less effective learning strategies. Overall, a focus on performance skills rather than mastery skills creates a negative motivational climate for students. Not only do teachers' methods of evaluation and feedback influence students' beliefs about their competencies in a global sense, it also influences how competent students feel about particular tasks and subject areas.

School-Wide Achievement Motivation Programs

In the early 90s, Maehr and Midgley identified a gap in achievement motivation interventions, stating, "...we know less about how to apply [achievement motivation] knowledge in a meaningful way in classrooms and in schools. Typically we pass along tidbits of wisdom to future teachers in lectures, textbooks, and popular articles and hope this will influence their practice" (1991, p. 401). Quick to follow was the school-wide TARGET framework developed by Ames (1992), which focuses on malleable contextual factors that can be adjusted within the school setting to promote achievement motivation.

The TARGET framework is a major framework in achievement goal theory, which includes a large emphasis on the promotion of effort over ability—or mastery over performance goals (Ames, 1992). This framework outlines six dimensions of teacher practices that influence the classroom goal structure and exemplify the major ideas of achievement goal theory. These dimensions are Task, Authority, Recognition, Grouping, Evaluation, and Time. In tasks, it is the value of learning and not the grade that is of

focus. The authority dimension suggests that students should share in classroom decision making to promote responsibility and independence. Recognition should be given privately to *all* students based on individual academic progress. Grouping of students can occur in a variety of ways (based on student friendships, interests, and achievement levels), but should be cooperative rather than competitive between groups. Like recognition, evaluation of students should emphasize individual progress and effort. Lastly, time refers to students having the ability to make decisions about how to spend and prioritize their time. These components of achievement goal theory are expected to positively influence student achievement motivation at the school-wide level.

Recent Developments and Future Directions

In the current chapter, achievement motivation was considered to be a perspective on motivation within a specific motivational context (an educational environment) and was approached using several contemporary micro theories of motivation. Attribution theory, self-efficacy theory, expectancy-value theory, and achievement goal theory provide the relevant theoretical components for examining research on achievement motivation.

In more current literature, achievement goal theory has been identified as having major proposed adaptations. Some of the advancements in this theory are controversial, and have sparked considerable conversation in the recent past. The same conversations also have implications for other achievement motivation theories, including attribution theory, and have the potential to advance research within attribution theory. As a result of this activity, achievement goal theory and attribution theory are selected and examined more closely in the sections below.

Relative to other theories of achievement motivation, achievement goal theory has seen consistent advancements since its development in the 1970s (Roeser, 2004; Elliot, Murayama, & Pekrun, 2011). Over time, two different perspectives have emerged: a person-centered approach and a context-centered approach. The person-centered approach believes that intrapersonal characteristics play a larger role in an individual's motivation than contextual factors. The context-centered approach believes that contextual factors have a greater effect on an individual's motivation than internal characteristics. The person-centered approach is now in its fourth conceptual model, the latest introduced in 2011 (Elliot, Murayama, & Pekrun, 2011). Context-centered researchers, on the other hand, have presented a case to remain with the original models of achievement goal theory.

The person-centered movement in achievement goal theory has shifted from the original dichotomous model of performance and avoidance goal orientations to the division of approach and avoidance orientations for both mastery and performance goals, and now, to a model that includes approach and avoidance orientations for task-based (mastery in relation to a task), self-based (mastery in relation to personal achievement), and other goals (performance) (Boekaerts, 2009). See Table 1 below for the evolution of achievement goal models. Most notable in the newer models is the separation of performance goals into performance approach and performance avoidance because of how they are believed to differentially affect student outcomes (Elliot, Murayama, & Pekrun, 2011). Less conversation in the person-centered movement has focused on mastery orientations. Researchers driving this movement have focused on performance

orientations because, unlike the context-centered approach, they believe that a performance approach orientation is associated with positive outcomes for students.

Table 1. The Evolution of Achievement Goal Models

Model	Types of Goals Included	Definition
The Dichotomous Model (1970s and 1980s)	Performance Mastery	An individual's motivation is defined by his or her value of learning, versus his or her value of performance—or what he or she can do in relation to others
The Trichotomous Model (2 X 1) (1990s and 2000s)	Performance approach -- Performance avoidance Mastery	Individual who adopts a performance approach towards learning is concerned most with <i>demonstrating</i> his/her competence to others Individual who adopts a performance avoidance towards learning is concerned most with <i>avoiding</i> demonstrating his/her competence to others
The 2 X 2 Model (2000s)	Performance approach -- Performance avoidance Mastery approach -- Mastery avoidance	Individual who adopts a mastery approach towards learning is most concerned with <i>demonstrating</i> his/her learning to others Individual who adopts a mastery

Model	Types of Goals Included	Definition
		avoidance approach towards learning is most concerned with <i>avoiding</i> demonstrating his/her learning to others
The 3 X 2 Model (2011)	Task approach -- Task avoidance Self approach -- Self avoidance Other approach -- Other avoidance	Individual adopts task approach when he/she is interested in the task for its own qualities Individual adopts tasks avoidance when he/she is disinterested in the tasks based on task qualities

One example of a study that supports the person-centered approach examined the effects of personality traits on achievement goals and mental focus (Lee, Sheldon, & Turban, 2003). This study included 284 undergraduate students at a large university in the Midwest. Personality characteristics were measured for three traits: autonomy orientation, control orientation, and amotivated orientation as conceptualized in self-determination theory (Deci & Ryan, 2000). These personality traits were measured with the General Causality Orientations Scale (Deci & Ryan, 1985). Mental focus was measured using a 6-item rating scale regarding the degree to which students expected to be able to concentrate for an upcoming exam. Results supported that personality characteristics influenced goal orientation and mental focus; an autonomy orientation was associated with having mastery goals and greater focus, a control orientation was

associated with both performance approach and performance avoidance goals as well as greater mental focus, and an amotivated orientation was associated with performance avoidance goals and less mental focus.

Along with the movement to advance the achievement goal model is an opposing movement, within the context-centered approach, to retain the original dichotomous achievement goal model (Midgley, Kaplan, & Middleton, 2001). Instead of focusing on improvements in student performance, proponents of this approach have focused on the question of whether a performance approach is *adaptive*, and if so, for whom, under what conditions, for what outcomes, and at what costs (Roeser, 2004; Midgley, Kaplan, & Middleton, 2001). These researchers believe that any type of performance goal is only adaptive in certain contexts, and may not be worth the cost. One example of a cost is the well-documented increase of cheating in performance-oriented classrooms in middle and high school levels (Anderman, Griesinger, & Westerfield, 1998; Stephens & Roeser, 2003). While performance may increase, other negative behaviors (i.e., more shallow learning strategies) may also increase.

One implication of the person-centered approach is its effect on school-based interventions. Within a person-centered approach, adjusting goal orientations in an educational context for individual students, classrooms, or entire schools, is perceived as less effective than targeting an individual's stable internal characteristics, which may not be feasible. On the other hand, the context-centered approach is more appealing to educators as it is perceived as more easily adjusted. The context-centered approach to achievement goal theory appears to be conducive with the controllable nature of effort over the fixed nature of ability.

This leads to a second implication of the person-centered approach; the assumption that goal orientations are stable over time and within different contexts (Lee, Sheldon, & Turban, 2003; Harackiewicz et al., 2002). In the context-centered approach, orientations are constantly in flux over time and as contextual variables change. Again, the ability for change in the context-centered approach is consistent with a growth mindset that believes that increased effort results in increased learning. This difference in perspectives urges the present paper towards the consideration of a common intervention within the realm of achievement motivation, one that supports the context-centered approach.

Attribution Retraining

One intervention in achievement motivation, first developed in the 1970s, is attribution retraining. Attribution retraining is implemented in the educational context and intends to change students' causal attributions from ability to effort. Attribution retraining operates under the assumption that all students can achieve mastery goal orientations, resulting in increased academic outcomes. It also operates under the assumption that students at present are making maladaptive attributions, those that lead to negative behaviors and outcomes, given the overall performance goal orientation of the nation's public education system. Attribution retraining is designed for students who have been trained to attribute their educational outcomes—their learning and performance—to factors beyond their control.

Recording individuals' naturally-occurring attributions is a difficult task for researchers. Instead, researchers induce participant attributions with achievement tasks. For example, participants might be induced to succeed or fail on a task, asked to recall a

past success or failure, or told to imagine a situation in which they experience success or failure. Attributions are then recorded through several different methods: a free-response format where subjects describe their own attributions, a forced-choice format where subjects select from an array of presented attributions, or a rating scale format where subjects rate the extent to which each attribution fits a particular outcome. A recent evaluation of these methods suggests that there is no evidence at present that any method(s) are better than the others (Graham & Williams, 2009). Of more focus at this time is the examination of the effects of attribution retraining on a variety of outcomes.

As discussed above, studies of achievement goal theory have begun to consider the relative importance of person versus contextual variables on goal orientations and motivation. In the current chapter, the same question is asked about attribution retraining. In a search of literature, has attribution retraining been examined in relation to the context of the classroom? Has attribution retraining been examined at all education levels—elementary, middle, and high school? Has attribution retraining been examined in relation to students at particular risk for educational failure and dropout in the context of alternative schools?

A review of literature on attribution retraining was conducted for the current chapter to determine what participant populations and dependent variables have and have not been examined in past studies. All studies returned in a search of “attribution retraining” were coded for the participants they used, as well as the dependent variables they measured. All studies included in the review had an experimental design examining the effects of attribution retraining alone or in combination with other interventions. See Appendix A for a list of comprehensive results—a table of studies coded followed by a

descriptive summary of the findings. Several themes emerged as gaps in the literature on attribution retraining.

Children are typically capable of making accurate attributions by 5 or 6 years of age (Shantz, 1983), which suggests that it is appropriate to study attributions throughout K-12 grades. As can be seen in Appendix A, high school grades are in particular need of additional research in the study of attribution retraining. Specifically, none of the studies found used a high school sample. One study used ages 9 through 15, and the rest used only elementary, middle, and college-level students.

No studies have used attribution retraining with alternative high school students.

Alternative Schools and Their Students

Research indicates that certain populations are at greater risk of developing negative patterns of attributions, as well as experiencing negative educational outcomes. These populations warrant focus in considering attribution retraining as an intervention.

Publications in recent years have documented a rise in alternative schools and programs throughout the United States (Lehr & Lange, 2003). According to Carver and Lewis (2010), there were 646,500 students enrolled in public school districts attending alternative schools and programs for at-risk students in 2007–08, with 558,300 students attending district-administered alternative schools and programs, and 87,200 students attending alternative schools and programs administered by another entity.

Entry criteria, exit criteria, program structure, and program function can differ greatly between different types of alternative programs (Lehr, & Lange, 2003). At present, the best common definition to encompass all alternative programs states that alternative schools and programs are designed to address the needs of students that

typically cannot be met in regular schools (Carver & Lewis, 2010). The students who attend alternative schools and programs are typically at risk of educational failure (as indicated by poor grades, truancy, disruptive behavior, pregnancy, or similar factors associated with temporary or permanent withdrawal from school).

Minority Students and Patterns of Attributions

Theorists have examined the effects of racial prejudice over time, as well as daily experiences of discrimination (Mickelson, 1990; Ogbu, 1983) and how these experiences in the community cause many disadvantaged students to believe that hard work in school is irrelevant (Lerman, 1997). Studies of minority students suggest that negative school experiences cause many students to develop maladaptive patterns of attributions (“sense of personal control” regarding achievement) (Ross & Broh, 2000). Such negative school experiences have been shown to encourage students’ use of self-handicapping strategies and lead to disengagement from school and higher dropout rates (Midgley, Arunkumar, & Urdan, 1996; Ross & Broh, 2000). These findings indicate a need for studies to look closer at how minority students’ attributions about achievement affect educational outcomes, and how these attributions can be supported to increase more positive outcomes for minority students.

Critique of the Literature/Research Rationale

Achievement motivation is valued because it predicts many important student outcomes including task enjoyment (Mueller & Dweck, 1998; Deci & Ryan, 1985; Renninger, 2000), positive affect (Rhodewalt & Vohs, 2005), use of learning strategies (Berger & Karabenick, 2011), and measures of academic achievement (Meece, Anderman, & Anderman, 2006; Schunk & Pajares, 2005). Students enrolled in alternative

schools are at particular risk for a lack of motivation and disengagement, as these programs and schools tend to separate out at-risk, low income, and minority students (Reyes, 2006). The students who attend alternative schools and programs are typically at risk of educational failure (as indicated by poor grades, truancy, disruptive behavior, pregnancy, or similar factors associated with temporary or permanent withdrawal from school). Studies of minority students suggest that negative school experiences cause many students to develop maladaptive patterns of attributions (“sense of personal control” regarding achievement) (Ross & Broh, 2000). Such negative school experiences have been shown to encourage students’ use of self-handicapping strategies and lead to disengagement from school and higher dropout rates (Midgley, Arunkumar, & Urdan, 1996; Ross & Broh, 2000). These findings indicate a need for studies to look closer at how minority students’ attributions about achievement affect educational outcomes, and how these attributions can be supported to increase more positive outcomes for minority students. In addition, a review of research on attribution retraining supported that more research should be conducted on 1) attribution retraining in the K-12 school setting, and 2) with high school level students, grades 9 – 13, and 3) with students enrolled in alternative programs and schools.

Research Questions

1. Do students display a difference in attributions among and between gender, age, attendance rates, enrollment code, and past educational experiences?
2. To what degree do students display an increase in effortful attributions when administered an attribution retraining intervention?

3. To what degree do students display an increase in engagement when administered an attribution retraining intervention?
4. To what degree do students display a difference in effortful attributions and engagement between the intervention and control group after administration of the attribution retraining intervention?

Chapter 3

Methods

Setting

The sample of students and their teachers were taken from one school in an intermediate district's Area Learning Center (ALC) in the greater metro area of an Upper Midwestern city. This sample included high school grades 9 through 13. The following is a summarization of a district-provided description of the ALC:

Area Learning Center (ALC) programs support students' education by providing a small group of caring people who team together to help one another. The ALC uses strategies that include non-traditional teaching methods, trade and vocational skills, work experience opportunities, and social and emotional coping skills. ALC programs serve students who live within the metro area. All students who chose to attend ALC programs must qualify under the Graduation Incentives Program. The ALC strives to provide social, emotional and academic support for each student.

Notably, some alternative schools and programs have a mandatory attendance policy that requires students to maintain a certain percentage of attendance. While this alternative school sets a goal for each student to have 80% attendance upon student intakes, the school does not un-enroll students unless they do not attend the program for 15 consecutive school days, at which time students are allowed to re-enroll.

Participants

The total number of enrolled students at the time of data collection was 118. Of the total students enrolled, 41 students completed the pretest measures and 40 completed both pre- and post-test measures. One of the students in the intervention group, who

received 9 days of intervention, was unable to take the post-test due to a weapons violation at the end of the intervention period. The student was removed from the program.

To be included in the current study, students had to be enrolled in the alternative school, referred to as the Area Learning Center (ALC), and had to be taking a math class during the quarter that data collection occurred. There were a total of 12 classrooms of grades 9 through 13 within the ALC. Of the 12 classrooms, two math classrooms were used in this study. All 118 enrolled students were taking a math class.

The experimenter's study was initially evaluated and approved by the Institutional Review Board (IRB) at the University of Minnesota. The experimenter also obtained verbal and written consent at the school level from the ALC's principal, as well as written consent at the district level, from the Executive Director of Special Services and Education Programs. Parents were mailed passive consent forms, and students were given active consent forms. Two teachers were teaching math classes in the ALC, and both agreed to participate in the study.

Students were separated into two groups: treatment (intervention) and control. Class periods were randomly selected to be in a treatment or control group. As a result, students were assigned to treatment or control group based on the class period they had math. Half of the math classes received treatment and half of the math classes received control. The experimenter randomly assigned each math class period to a treatment or control group until half of the math classes were assigned to intervention and half were assigned to control. The experimenter did not randomly assign students to classroom (teacher) or class period.

The experimenter provided a schedule listing intervention and control class periods to each teacher, with the purpose of preventing contamination of the control group. Teachers were directed to use their “normal” language with the control group—that is, they were directed to use effortful and uncontrollable attributions in a way that they typically would with their class. They were directed to make no intentional mistakes. After two days of intervention, teachers were sent an email reminder of the procedures, and the experimenter checked in with both teachers to remind them of these procedures, as well as answer questions.

Intervention Group

The intervention group consisted of 5 classrooms, in which 12 students participated, making up 29.3% of the total participants. Consent was obtained by the experimenter on day 1 of data collection, followed by the pre-test data for consenting students.

Control Group

The control group consisted of 5 classrooms, in which 29 students participated making up 70.7% of the total participants. Consent was obtained by the experimenter on day 1 of data collection, followed by the pre-test data for consenting students.

While the total number of students enrolled in the ALC at the time of data collection was 118, only 41 participated in the pre-test and 40 participated in the posttest data collection for the current study. This resulted in 35% of enrolled students participating in the pre-test, and 34% of enrolled students participating in both the pre-test and post-test. This was mostly due to low attendance, as is typical in the ALC. In addition, three students in the intervention group were noted by the experimenter to walk

out of the classroom during the pre-test. A few students were reported by the teachers and the experimenter to refuse to complete the pre-test survey packet in the control group as well.

While an equal number of classrooms were assigned to the intervention and control groups, many more students were in the control group in comparison to the intervention group. There are several reasons for this discrepancy. First, the intervention group had 48 students scheduled in class periods assigned to the intervention group, whereas the control group had 70 students scheduled in class periods assigned to the control group. Therefore, the intervention group had smaller class sizes. This was likely due to fewer students needing credits for those particular math classes. For example, if the intervention classes included Algebra classes and the control group included Geometry classes and fewer students needed to fulfill Algebra classes, fewer students would have been scheduled into those classes.

Additionally, both groups were affected by student attendance. Therefore, in both groups there was some loss of participants due to not attending school on the first day of data collection. In the intervention group, 12 out of 48 students attended on day 1 of data collection, with an attendance rate of 25%. In the control group, 29 out of 70 students attended on day 1 of data collection, with an attendance rate of 41%. Therefore, fewer students scheduled in classes in the intervention group attended school on day 1 of data collection in comparison to the control group, contributing to the smaller number of students in the intervention group.

Table 2. Demographic Information for Treatment and Control Groups, N = 41

		Treatment (intervention)	Control
		N = 12	N = 29
Gender			
	Male	2	9
	Female	10	20
IEP			
	Yes	1	5
	No	11	24
Race			
	Black	8	19
	White	3	5
	Hispanic	0	1
	Mixed	1	4
Age			
	15 years	0	3
	16 years	1	7
	17 years	0	10
	18 years	7	5
	19 years	4	1
	20 years	0	3
Grade			
	9	0	1

	Treatment (intervention)	Control
	N = 12	N = 29
10	0	8
11	1	5
12	5	10
13 and 14	6	5
Attendance Rate		
25 -65%	2	6
66-85%	9	14
86-100%	1	9

Note: Number of days absent per days enrolled was collected for all participants until the day of the pre-test.

Separating students by the attendance rate ranges in Table 2 above was done from a practical perspective, where the mid-range encompassed in Group 2 was an anticipated average range for ALC students, Group 1 was low attending students, and Group 3 was high attending students. About half of the sample, 56%, fell within Group 2, whereas 19.5% fell within Group 1, and 24.4% fell within Group 3.

Enrollment Code

In order to be enrolled in the ALC, a student under the age of 21 must meet one of the following legislative criteria to be eligible to choose a non-traditional education program. The following enrollment codes are given to each student upon enrollment, and are termed High School Graduation Incentives (HSGI) codes:

Enrollment Code 1: Performs substantially below the performance level for pupils of the same age in a locally determined achievement test.

Enrollment Code 2: Is behind in satisfactorily completing coursework or obtaining credits for graduation.

Enrollment Code 3: Is pregnant or is a parent.

Enrollment Code 4: Has been assessed as chemically dependent.

Enrollment Code 5: Has been excluded or expelled.

Enrollment Code 6: Has been referred by a school district for enrolment in an eligible program.

Enrollment Code 7: Is a victim of physical or sexual abuse.

Enrollment Code 8: Has experienced mental health problems.

Enrollment Code 9: Has experienced homelessness sometime within six months before requesting a transfer to an eligible program.

Enrollment Code 10: Speaks English as a second language or has limited English proficiency.

Enrollment Code 11: Has withdrawn from school or is chronically truant.

Enrollment Code 12: Is being treated in a hospital in the seven-county metropolitan area for cancer or other life-threatening illness or is the sibling of an eligible pupil who is currently being treated, and resides with the pupil's family at least 60 miles beyond the outside boundary of the seven-county metropolitan area.

The above enrollment codes are given to each student upon enrollment, and can change between enrollment year, but only reflect the student's enrollment eligibility at

the time of enrollment, not necessarily what the student would be coded as throughout the year if the student remains enrolled during the school year. Students receive only one enrollment code. Students never receive more than one enrollment code. For example, a student may be enrolled with enrollment code 3, if she enrolls as a pregnant student. However, during the year, if the student becomes homeless, the enrollment code would not change to a 9. The enrollment code is given at the beginning of each school year, or at the time of enrollment for that year and intends to represent that main reason the student is enrolling in an alternative program.

Table 3. Total Sample Enrollment Code, N = 41

Enrollment Code	Frequency	Percent of Sample
2	18	43.9
3	16	39
5	6	14.6
6	1	2.4

Table 4. Intervention Group Enrollment Code, N = 12

Enrollment Code	Frequency	Percent of Sample
2	5	41.7
3	5	41.7
5	1	8.3
6	1	8.3

Table 5. Control Group Enrollment Code, N = 29

Enrollment Code	Frequency	Percent of Sample
2	13	44.8
3	11	37.9
5	5	17.2

As can be seen in Table 3, the enrollment codes included in the sample of the present study were predominantly 2 – is behind in satisfactorily completing coursework or obtaining credits for graduation, 3 - Is pregnant or is a parent, and slightly less of 5 - has been excluded or expelled. Only one student was given enrollment code 6 - has been referred by a school district for enrollment in an eligible program. Intervention and control groups looked very similar to one another with both groups being predominantly enrollment codes 2 and 3. The control group had slightly more students with enrollment code 5, and the intervention group included the only student with enrollment code 6.

Measures

Student Attribution Questionnaire

To measure student attributions, the experimenter collected a pre-test and post-test of a self-report questionnaire from past studies of attribution retraining, hereafter referred to as the Student Attribution Questionnaire, or SAQ (Horner & Gaither, 2004; Newman & Stevenson, 1990) (See Appendix D for a copy of the attribution questionnaire). Developers of this questionnaire compared student responses on the SAQ to their actual achievement. Results indicated that higher achievers were relatively likely to attribute success and not failure to stable causes and relatively likely to attribute failure

and not success to unstable causes. One study used this questionnaire to measure changes in attributions when students were administered an attribution retraining intervention in math (Horner & Gaither, 2004). There was no evidence that girls, in comparison with boys, are maladaptive in their causal reasoning.

As part of the questionnaire, attributions for two outcomes (success and failure on a test) in two subject areas (mathematics and reading) were measured in four separate blocks of scales: (1) success in reading, (2) success in math, (3) failure in reading, and (4) failure in math. In each block, attributions referred to ability, help from the teacher, interest in the subject, effort, test difficulty, mood, specific skills being tested and luck. These particular causes have been commonly examined in research on children's reasoning about academic success and failure (Newman & Stevenson, 1990; Horner & Gaither, 2004).

A success prompt (“Think about a time you passed a math test,” “Think about a time you passed a reading test”) was followed by the eight statements that represent different attributions (e.g., “I am smart,” “I was lucky”). For each of the eight statements, students rated the importance of that attributional factor in their success on the math or reading test. In addition, a failure prompt (“Think about a time you failed a math test,” “think about a time you failed a reading test”) is followed by the same eight statements that represent different attributions.

Response format was a rating scale for which subjects rated the extent to which each attribution fit a particular outcome. Specifically, the attribution questionnaire was a Likert-scale response type ranging from 1 – not at all important, 4 – somewhat important, and 7 – very important.

Responses were analyzed using two separate scores. The first score was the average of the responses to the effort statements for success-related and failure-related sections in reading and in math. The second score was the average of responses to the uncontrollable responses for success-related and failure-related sections in reading and in math.

Internal consistency was examined in the current study. On the pre-test, internal consistencies for the 8 attributions were: .58 for “smart,” .58 for “teacher help,” .60 for “enjoy,” “.85 for “study,” .61 for “easy,” .76 for “feel good,” and .72 for “knew it.” On the post-test, internal consistencies for the 8 attributions were: .74 for “smart,” .74 for “teacher help,” .60 for “enjoy,” .86 for “study,” .76 for “easy,” .87 for “feel good,” .86 for “knew it,” and .87 for “luck.”

Student Engagement Instrument

The experimenter also collected data on how the attribution retraining intervention affected student engagement, as measured by a pre-test and post-test with the Student Engagement Instrument (Appleton & Christenson, Kim, & Reschly, 2006) (See Appendix E for a copy of the Student Engagement Instrument). The Student Engagement Instrument (SEI) is comprised of 33 items which have Likert-scale responses types. The Likert scale includes the ratings 1 – strongly agree, 2 – agree, 3-disagree, and 4-strongly disagree.

The SEI has been used with middle school and high school level students (Appleton et al., 2006; Betts et al., 2010; Reschly et al., 2008). It was designed to measure affective and cognitive engagement, moving beyond the observable constructs of academic and behavioral engagement. Therefore, it does not measure academic and

behavioral engagement. The constructs of affective and cognitive engagement are assessed by six subscales: teacher-student relationships (affective), peer support at school (affective), family support for learning (affective), control and relevance of schoolwork (cognitive), future aspirations and goals (cognitive), and extrinsic motivation (cognitive). Research indicates that internal consistency is lower for the subscale of extrinsic motivation, as discussed in the paragraph below, and therefore the subscale of extrinsic motivation was not used in the current study.

Several studies support that the SEI has sound psychometric properties. According to Appleton et al. (2006), internal consistencies (Cronbach's alphas) for its six subscales were .88 for teacher-student relationships, .80 for control and relevance of schoolwork, .82 for peer support at school, .78 for future aspirations and goals, .76 for family support for learning, and .72 for extrinsic motivation. This study also examined the construct validity of its six subscales using confirmatory factor analysis. Likewise, Betts et al. (2010) found evidence for the validity of all subscales except extrinsic motivation. Data on the subscale of extrinsic motivation was not collected for the present study. Data on affective engagement using the subscales of teacher-student relationships, peer support at school, and family support for learning, as well as cognitive engagement using the subscales of future aspirations and goals, and control and relevance of schoolwork were collected for the current study.

Responses were analyzed in the areas of affective engagement and cognitive engagement with five separate mean scores which corresponded to five subscales. Affective engagement was measured by the subscales: teacher-student relationships, family support for learning, and peer support at school. Cognitive engagement was

measured by the subscales: control and relevance of schoolwork, and future aspirations and goals.

Procedures

Two math teachers in the Area Learning Center (ALC) were approached for participation in the current study. The experimenter explained the proposed role of the experimenter, the role of the teachers, and the role of the students. The experimenter explained the purpose and duration of the study. The experimenter explained possible risks and benefits of participating in the study. Both math teachers agreed to participate in the current study.

One week before intervention implementation was planned, the experimenter scheduled a time to meet with the two math teachers individually to be trained on intervention implementation. While the training was done individually, a standard protocol of training was followed. The experimenter met with each teacher during their lunch period. During this training session, the experimenter first described the work of Carol Dweck (2006) and Janine Bempechat (2000) on growth mindset and achievement motivation. Two pages of examples of growth mindset language that demonstrated effortful attributions were provided to the teachers, and gone over with the experimenter (see Appendix B). The teachers were encouraged to read this again on their own. The experimenter also provided a copy of the intervention protocol and explained this to both teachers (see Appendix C).

The experimenter provided a schedule listing intervention and control class periods to each teacher, with the purpose of preventing contamination of the control group. Teachers were directed to use their “normal” language with the control group—

that is, they were directed to use effortful and uncontrollable attributions in a way that they typically would with their class. They were directed to make no intentional mistakes. After two days of intervention, teachers were sent an email reminder of the procedures, and the experimenter checked in with both teachers to remind them of these procedures, as well as answer questions.

Half of the classes with each teacher were administered the intervention, while the other half of the classes comprised the control group, and were exposed to math instruction without the intervention. Intervention and control alternated between class periods. Teacher 1 had intervention during her 1st, 3rd, and 6th period. Teacher 2 had intervention during his 2nd and 5th period. Teacher 1 had control during her 2nd, 5th, and 7th period. Teacher 2 had control during his 1st and 3rd period.

Teachers were provided with intervention and control group class schedules. Teachers were provided with consent forms and pre-test survey packets, separated into separate folders by class period. Survey packets were labeled with participant identification numbers. Each teacher's folder had a class roster with student name and identification number, and each pretest survey had a Post-It note on it with the student name, that was removed upon student completion of the pre-test survey.

Several students had two math classes in their schedule, for example, some students were taking both Algebra and Geometry to fulfill credit requirements for graduation. However, none of the students with two math classes ended up being randomly scheduled in two intervention class periods. Therefore, none of the students received a double exposure to the intervention. Some of the students were in two control periods, and the experimenter collected the pre- and post-test during just one of these

periods, so that students in two control periods did not have to complete the pre- and post-test survey packets twice. Some of the students were in one control period and one intervention period, in which case, the experimenter assigned them to the treatment group and only collected pre- and post-test survey packets during that period.

Intervention

Typically, studies of AR create similar but different interventions. The AR intervention for the current study was based off of past studies using AR in math classes to promote attributions that are internal, unstable, and controllable (effort attributions). The intervention was closely based off of one study that occurred in a classroom setting with the same pre-test post-test intervention design as the current study: Horner and Gaither (2004).

Horner and Gaither (2004) completed 8 days of the attribution retraining intervention with 2nd grade students. The intervention administered in this study was composed of discreet teaching of effortful attributions. The teacher made an intentional mistake each math lesson and corrected this with effortful language (i.e., “I got this wrong because I did not put forth the effort. I have not learned the strategy yet.”). There were no other components to the intervention.

In the current study, implementation of an attribution retraining intervention was administered at a class-wide level by both the experimenter and the classroom teachers. The attribution retraining intervention was adapted from Horner and Gaither (2004). Participants in the current study differed from those used in Horner and Gaither in that they were high school level students attending an alternative high school and were at risk for failure to graduate. As a result, the experimenter added a direct teaching component to

the intervention to the discreet teaching method used in Horner and Gaither (2004). The intervention consisted of a one-time 15-minute presentation, given by the experimenter, which defined attributions. Practical examples of different attributions were given. Students were taught how patterns of attributions relate to achievement outcomes in research findings. See Appendix G for the attribution retraining presentation slides.

Following the experimenter-led attribution retraining presentation, teachers engaged in a teacher-led component each class period, every day for two weeks; a total of 10 days. Teachers were asked to make one intentional mistake on a math problem per class period. The teacher was asked to correct his or her mistake modeling effortful attributions. For example, the teacher could say, “How did I make that mistake? I must try again to get the strategy right.” During week 1 of the intervention, the experimenter did a fidelity check, providing feedback to teachers, and ensured that any questions or concerns from teachers were addressed. See Appendix C for the attribution retraining intervention protocol.

During the two weeks of intervention, teachers were also asked to maintain only effortful attributions (e.g., Great job, you’re working so hard!) when speaking of their own or any students’ behaviors or performance, and refrain from using any ability attributions (e.g., You’re so smart!).

In terms of dosage, all subjects included in the study received day 1 of the intervention with the experimenter-led presentation on attributions. Between day 1 and day 10 of the intervention, students ranged from receiving a total of 3 days of intervention to 9 days of intervention. Any days students missed were due to absences. See Table 6 below for the number of students receiving each treatment dosage.

Table 6. Treatment Dosages.

Days of Intervention	Number of Students
3 days	1
4 days	2
5 days	1
6 days	3
7 days	3
9 days	2

One of the students receiving 9 days of intervention was unable to take the post-test due to a weapons violation at the end of the intervention period. The student was removed from the program.

Control

As stated above, the experimenter provided a schedule listing intervention and control class periods to each teacher, with the purpose of preventing contamination of the control group. Teachers were directed to use their “normal” language with the control group—that is, they were directed to use effortful and uncontrollable attributions in a way that they typically would with their class. They were directed to make no intentional mistakes. After two days of intervention, teachers were sent an email reminder of the procedures, and the experimenter checked in with both teachers to remind them of these procedures, as well as answer questions.

Analyses

In order to answer research questions 2 and 3, paired samples t tests were used to analyze scores on pre- and post-test measures for individuals in the treatment and control groups. This statistical test allows for the determination of a statistical difference between the change in pre- and post-test scores for each group—intervention and control. The paired samples t-test was used because the pre-test sample was composed of the same students as the post-test sample, and therefore, pre- and post-test scores could be “paired” by student.

While a total of 41 students completed the pretest, 40 students completed both the pretest and post-test, and therefore data from 40 students were analyzed using the paired samples t tests.

Chapter 4

Results

This chapter presents the results for each of the research questions posed:

1. Do students display a difference in attributions and engagement among and between gender, age, attendance rates, enrollment code, and educational history?
2. To what degree do students display an increase in effort attributions when administered treatment?
3. To what degree do students display an increase in engagement when administered treatment?
4. To what degree do students display a difference in effortful attributions and engagement between the intervention and control group after administration of the attribution retraining intervention?

Descriptive Statistics

Descriptive information for the sample of students as a whole, combining intervention and control groups, by pre-test measure is presented in Table 7.

Table 7. Descriptive Statistics by Measure for Whole Sample

Measure	Mean	SD	Skew	Kurtosis
<i>Pre-test Student Attribution</i>				
<i>Questionnaire N = 41</i>				
Effortful attributions	4.05	1.31	-.25	-.37
Uncontrollable attributions	3.7	.86	-.24	.3
<i>Pre-test Student Engagement Instrument</i>				
<i>N = 41</i>				
Cognitive engagement				
Future aspirations and goals	3.34	.5	-1.49	4.29
Control and relevance of school work	3.04	.5	-.19	-.33
Affective engagement				
Family support for learning	3.04	.61	-.9	1.85
Student-teacher relationships	2.99	.52	-.41	1.33
Peer support at school	2.82	.66	-.36	.63

Descriptive data presented in Table 7 indicate that for the intervention and control group combined, effort was rated as slightly more important in its effect on educational outcomes in relation to uncontrollable attributions. The mean rating for effortful attributions indicated a response of “somewhat important.” However, uncontrollable attributions were rated only slightly less important in their effect on educational outcomes in relation to effortful attributions.

Students reported a slightly higher level of cognitive engagement compared to affective engagement. The mean rating for both subscales of cognitive engagement indicated a response of “agree” with engagement statements. Cognitive engagement overall was rated slightly higher with slight directionality towards a rating of “strongly agree.” Affective engagement was rated only slightly less, indicating a slight directionality towards a rating of “disagree” due to ratings on the subscale of peer support at school. The affective engagement subscales of family support for learning and student-teacher relationships were higher than peer support at school, indicating ratings of “agree.”

Within-group descriptive information by pre-test measure is presented in Table 8 and 9.

Table 8. Descriptive Statistics by Measure for Control Group

Measure	Mean	SD
<i>Pre-test Student Attribution Questionnaire N = 29</i>		
Effortful attributions	3.97	1.39
Uncontrollable attributions	3.75	.85
<i>Pre-test Student Engagement Instrument N = 29</i>		
Cognitive engagement		
Future aspirations and goals	3.27	.54
Control and relevance of school work	2.96	.5
Affective engagement		
Family support for learning	2.93	.67
Student-teacher relationships	2.92	.54
Peer support at school	2.72	.61

Within-group descriptive data presented in Table 8 indicate that for the control group, effort was rated as slightly more important in its effect on educational outcomes in relation to uncontrollable attributions, but the two types of attributions were rated very similarly. The mean rating for effortful attributions indicated a response of “somewhat important.” Uncontrollable attributions were rated only slightly less important in their effect on educational outcomes in relation to effortful attributions.

Students reported a slightly higher level of cognitive engagement compared to affective engagement. The mean rating for both subscales of cognitive engagement indicated a response of “agree” with engagement statements. However, affective

engagement was rated only slightly less, indicating a response between “agree” and “disagree.”

Table 9. Descriptive Statistics by Measure for Intervention Group

Measure	Mean	SD
<i>Pre-test Student Attribution Questionnaire N = 12</i>		
Effortful attributions	4.27	1.1
Uncontrollable attributions	3.57	.9
<i>Pre-test Student Engagement Instrument N = 12</i>		
Cognitive engagement		
Future aspirations and goals	3.5	.32
Control and relevance of school work	3.24	.46
Affective engagement		
Family support for learning	3.31	.34
Student-teacher relationships	3.19	.45
Peer support at school	3.07	.74

Within-group descriptive data presented in Table 9 indicate that for the intervention group, effort was rated as slightly more important in its effect on educational outcomes in relation to uncontrollable attributions. The mean rating for effortful attributions indicated a response closest to “somewhat important” and slightly more towards “very important.” Uncontrollable attributions were rated slightly less important

in their effect on educational outcomes in relation to effortful attributions, and rated slightly more towards “not at all important.”

Students reported a slightly higher level of cognitive engagement compared to affective engagement overall. The mean rating for both subscales of cognitive engagement indicated a response of “agree” with engagement statements. Affective engagement was rated only slightly less overall, but still indicated a response of “agree.”

Variability Between Intervention and Control Group

Descriptive information differs somewhat between groups. The control group reported less variability between the importance of effortful and uncontrollable attributions. The intervention group reported greater importance of effort on educational outcomes and less importance of uncontrollable factors on educational outcomes compared to the control group.

The means for the intervention group were slightly higher when compared to the control group.

In addition to examining descriptive data and prior to conducting correlational analyses and analysis of variance, the assumptions for correlations and analysis of variance were examined. This included examining the normality of the distribution of scores for each measure. Figure 2 indicates that scores on the Student Attribution Questionnaire for intervention and control groups combined resembled a normal distribution. This distribution indicated little skewness and kurtosis for responses on the Student Attribution Questionnaire.

Figure 2. Distribution of Student Attribution Questionnaire Total Scores for Intervention and Control Groups Combined

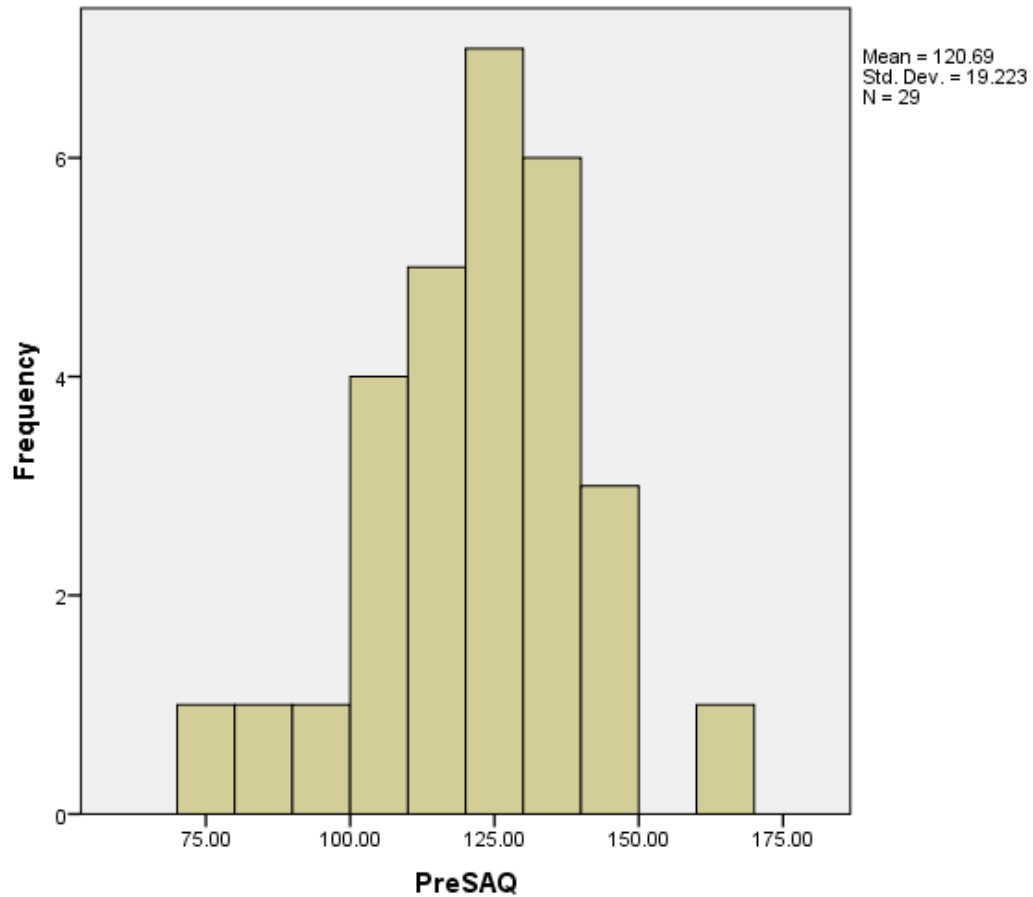


Figure 3 indicates that scores on the Student Attribution Questionnaire for intervention and control groups combined resembled a normal distribution. This distribution indicated little skewness and kurtosis for responses on the Student Attribution Questionnaire. This distribution indicated that one student was an outlier.

Figure 3. Distribution of Student Engagement Instrument Total Scores for Intervention and Control Groups Combined

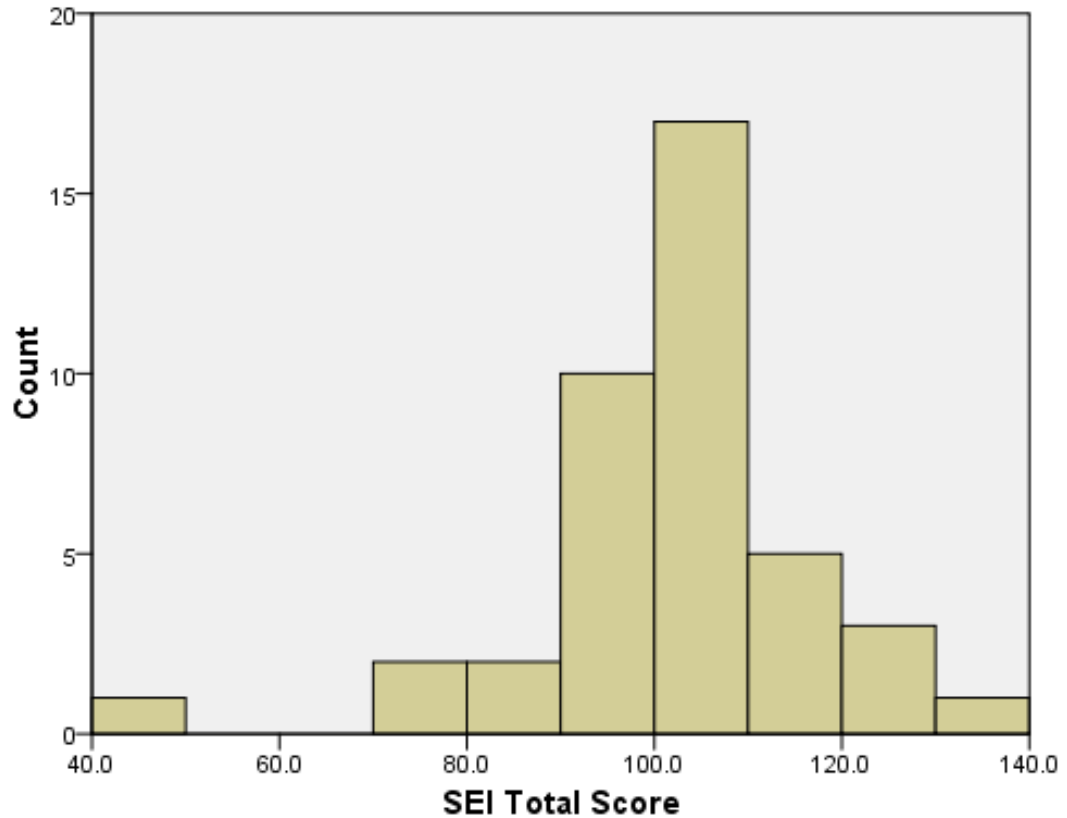
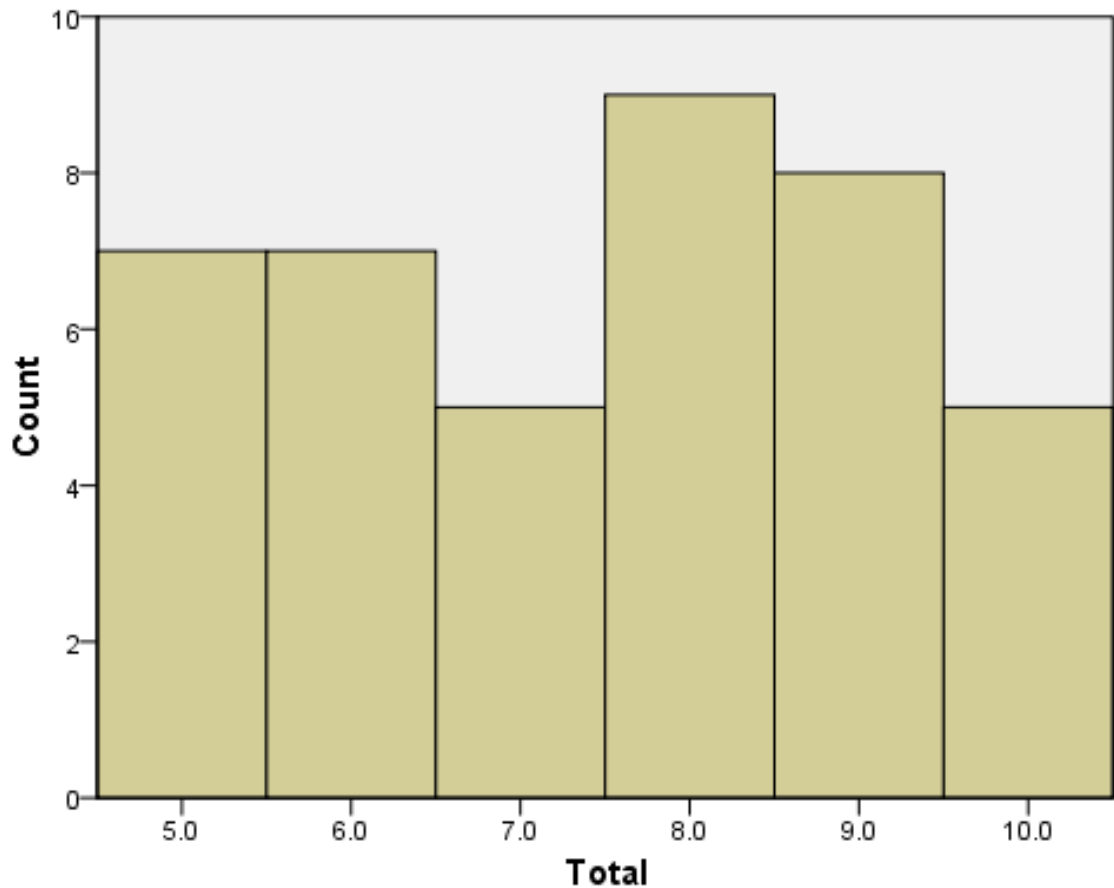


Figure 4 indicates that scores on the 5-Question Educational History Survey for intervention and control groups combined did not resemble a normal distribution. Student scores on this measure indicated platykurtic distribution, meaning that student scores were uniformly distributed.

In the whole sample, 14 students had a total score of 5-6, placing them in the Low Risk group, 14 students had a total score of 7-8, placing them in the Medium Risk group, and 13 students had a total score of 9-10, placing them in the High Risk group.

Both the intervention and control group were similar in the ratio of Low, Medium, and High Risk students based on the 5-Question Educational History Survey. The breakdown by category for the intervention group was: Low Risk N = 4, Medium Risk N = 5, High Risk N = 3. The breakdown by category for the control group was: Low Risk N = 10, Medium Risk N = 9, High Risk N = 10.

Figure 4. Distribution of 5-Question Educational History Survey Total Scores for Intervention and Control Groups Combined



Research Question 1

Do students display a difference in attributions and engagement among and between gender, age, attendance rates, enrollment code, and educational history?

Gender

To examine whether differences in attributions and engagement exist between male and female students, a one-way analysis of variance (ANOVA) was conducted using pretest scores on the Student Attribution Questionnaire and Student Engagement Instrument. For the attribution questionnaire mean scores were calculated for two subscales: effortful attribution statements and uncontrollable attribution statements. For the Student Engagement Instrument, mean scores were calculated for five subscales, for affective engagement (student-teacher relationships, family support for learning, peer support at school) and cognitive engagement (control and relevance of schoolwork, and future aspirations and goals). Results of these analyses are presented in Table 10.

Table 10. Student Attributions and Engagement by Gender

	Gender			
	df	Mean Square	F	p
<i>Student attribution questionnaire</i>				
Effortful attribution	1	.1	.06	.81
Uncontrollable attribution	1	.37	.5	.49
<i>Student Engagement Instrument</i>				
Cognitive engagement				
Future aspirations and goals	1	.21	.85	.36
Control and relevance of school work	1	.11	.43	.52
Affective engagement				
Family support for learning	1	.01	.03	.87
Student-teacher relationships	1	.00	.01	.93
Peer support at school	1	.05	.11	.74

The results of the one-way analysis of variance indicate that there is not a significant difference in reports of effortful ($F_{1,39} = .06, p = .81$) or uncontrollable attributions ($F_{1,39} = .5, p = .49$) as a function of students' gender. These results also indicate that there is not a significant difference on indicators of affective engagement [student-teacher relationships ($F_{1,39} = .01, p = .93$), family support for learning ($F_{1,39} = .03, p = .87$), peer support at school ($F_{1,39} = .11, p = .74$)], or cognitive engagement [control and relevance of schoolwork ($F_{1,39} = .43, p = .52$), and future aspirations and goals ($F_{1,39} = .21, p = .85$)] as a function of students' gender.

Age

To examine whether differences in attributions and engagement exist among students of different ages, a one-way analysis of variance (ANOVA) was conducted using pretest scores on the Student Attribution Questionnaire and Student Engagement Instrument. Results of these analyses are presented in Table 11.

Table 11. Student Attributions and Engagement by Age

	Age			
	df	Mean Square	F	p
<i>Student attribution questionnaire</i>				
Effortful attribution	5	2.54	1.6	.19
Uncontrollable attribution	5	.92	1.31	.28
<i>Student Engagement Instrument</i>				
Cognitive engagement				
Future aspirations and goals	5	.07	.25	.94
Control and relevance of school work	5	.17	.66	.66
Affective engagement				
Family support for learning	5	.25	.63	.68
Student-teacher relationships	5	.13	.45	.81
Peer support at school	5	.07	.13	.98

The results of the one-way analysis of variance indicate that there is not a significant difference on reports of effortful ($F_{5,35} = 1.6, p = .19$) or uncontrollable

attributions ($F_{5,35} = 1.31, p = .28$) as a function of students' age. These results also indicate that there is not a significant difference on indicators of affective engagement [student-teacher relationships ($F_{5,35} = .45, p = .81$), family support for learning ($F_{5,35} = .63, p = .68$), peer support at school ($F_{5,35} = .13, p = .98$)] and cognitive engagement [control and relevance of schoolwork ($F_{5,35} = .66, p = .66$), and future aspirations and goals ($F_{5,35} = .25, p = .94$)] as a function of students' age.

Attendance rates

To examine whether differences in attributions and engagement exist among students with different attendance rates, a one-way analysis of variance (ANOVA) was conducted using pretest scores on the Student Attribution Questionnaire and Student Engagement Instrument. Different rates of attendance were categorized into three groups: Group 1 – students with attendance between 25 and 65%, Group 2 – students with attendance between 65 and 85%, and Group 3 – students with attendance between 85 – 100%. Separating attendance by these rates was done from a practical perspective, where the mid-range encompassed in Group 2 was an anticipated average range for ALC students, Group 1 was low attending students, and Group 3 was high attending students. About half of the sample, 56%, fell within Group 2, whereas 19.5% fell within Group 1, and 24.4% fell within Group 3. Results of these analyses are presented in Table 12.

Table 12. Student Attributions and Engagement by Attendance Rates

	Attendance rates			
<i>Student attribution questionnaire</i>	df	Mean Square	F	p
Effortful attribution	36	1.82	2.61	.18
Uncontrollable attribution	36	.79	3.57	.11
<i>Student Engagement Instrument</i>				
Cognitive engagement				
Future aspirations and goals	2	.17	.68	.51
Control and relevance of school work	2	.09	.32	.73
Affective engagement				
Family support for learning	2	.55	1.51	.23
Student-teacher relationships	2	.06	.2	.82
Peer support at school	2	.21	.48	.62

The results of the one-way analysis of variance indicate that there is not a significant difference on reports of effortful ($F_{2,38} = 2.61, p = .18$) or uncontrollable attributions ($F_{2,38} = 3.57, p = .11$) as a function of students' attendance rates. These results also indicate that there is not a significant difference on indicators of affective engagement [student-teacher relationships ($F_{2,38} = .2, p = .82$), family support for learning ($F_{2,38} = 1.51, p = .23$), peer support at school ($F_{2,38} = .48, p = .62$)] and cognitive engagement [control and relevance of schoolwork ($F_{2,38} = .32, p = .73$), and future aspirations and goals ($F_{2,38} = .68, p = .51$)] as a function of students' attendance rates.

Enrollment Code

To examine whether differences in attributions and engagement exist among students with different enrollment codes, a one-way analysis of variance (ANOVA) was conducted using pretest scores on the Student Attribution Questionnaire and Student Engagement Instrument. Results of these analyses are presented in Table 13.

Table 13. Student Attributions and Engagement by Enrollment Code

	Enrollment Code			
<i>Student attribution questionnaire</i>	df	Mean Square	F	p
Effortful attribution	3	1.99	1.18	.33
Uncontrollable attribution	3	.68	.92	.44
<i>Student Engagement Instrument</i>				
Cognitive engagement				
Future aspirations and goals	3	.08	.31	.82
Control and relevance of school work	3	.04	.14	.93
Affective engagement				
Family support for learning	3	.24	.62	.61
Student-teacher relationships	3	.07	.25	.86
Peer support at school	3	.1	.21	.89

The results of the one-way analysis of variance indicate that there is not a significant difference on reports of effortful ($F_{3,37} = 1.18, p = .33$) or uncontrollable attributions ($F_{3,37} = .92, p = .44$) as a function of students' enrollment codes. These results

also indicate that there is not a significant difference on indicators of affective engagement [student-teacher relationships ($F_{3,37} = .25, p = .86$), family support for learning ($F_{3,37} = .62, p = .61$), peer support at school ($F_{3,37} = .21, p = .89$)] and cognitive engagement [control and relevance of schoolwork ($F_{3,37} = .14, p = .93$), and future aspirations and goals ($F_{3,37} = .31, p = .82$)] as a function of students' enrollment codes.

Educational History

To examine whether differences in attributions and engagement exist among students of different educational histories, a one-way analysis of variance (ANOVA) was conducted using pretest scores on the Student Attribution Questionnaire and Student Engagement Instrument. For educational history, a 5-question survey was used with the following questions: (1) Have you ever been suspended, expelled, or held back a grade in school? (2) Have you had difficulty attending school any times throughout the years? (3) Do you consider yourself to have moved between more schools than the average student? (4) Overall, do you feel like school teachers and staff have NOT cared about you through the years? (5) Have you ever thought of yourself as a "bad kid"? An answer of "yes" to a question was scored as 1 point; an answer of "no" was scored as 2 points. Overall scores ranged from 5-10 points. Students' overall scores were separated into three categories, with Group 1 having a score of 5-6, Group 2 having a score of 7-8, and Group 3 having a score of 9-10. The examiner hypothesized that different experiences may affect students differently in their responses on the Student Attribution Questionnaire and Student Engagement Instrument. For example, one risk factor, such as being suspended, expelled, or held back a grade, may be a risk factor to one student but not another. The examiner therefore hypothesized that different responses to individual items on the 5-question

survey may not be as meaningful as the total score of risk factors. Essentially, the experimenter hypothesized that the number of risk factors overall may affect student scores on the Student Attribution Questionnaire and Student Engagement Instrument more than the responses to individual risk factors. Results of these analyses are presented in Table 14.

Table 14. Student Attributions and Engagement by Educational History

Overall Educational History – By Group				
<i>Student attribution questionnaire</i>	df	Mean Square	F	p
Effortful attribution	2	.64	.36	.7
Uncontrollable attribution	2	.85	1.16	.32
<i>Student Engagement Instrument</i>				
Cognitive engagement				
Future aspirations and goals	2	.07	.27	.77
Control and relevance of school work	2	.03	.12	.89
Affective engagement				
Family support for learning	2	.05	.12	.89
Student-teacher relationships	2	.03	.1	.91
Peer support at school	2	.1	.21	.81

The results of the one-way analysis of variance indicate that there is not a significant difference on reports of effortful ($F_{2,38} = .36, p = .7$) or uncontrollable attributions ($F_{2,38} = 1.16, p = .32$) as a function of educational history. These results also

indicate that there is not a significant difference on indicators of affective engagement [student-teacher relationships ($F_{2,38} = .1, p = .91$), family support for learning ($F_{2,38} = .12, p = .89$), peer support at school ($F_{2,38} = .21, p = .81$)] or cognitive engagement [control and relevance of schoolwork ($F_{2,38} = .12, p = .89$), and future aspirations and goals ($F_{2,38} = .27, p = .77$)] as a function of educational history.

Research Question 2

To what degree do students display an increase in effortful attributions when administered treatment?

To examine whether a within-group increase in effortful attributions occurred among students who received an attribution retraining intervention, a paired-sample t-test was completed using pretest scores on the attribution questionnaire and post-test scores on the same attribution questionnaire. Mean scores were calculated for two subscales: effortful attribution statements and uncontrollable attribution statements. P values were adjusted with the Bonferonni adjustment and were insignificant. Results of these analyses are presented in Table 15.

Table 15. Student Attribution Questionnaire Mean Scores, Standard Deviations, and Paired T Tests as a Function of Instruction Condition

Measures	Pretest		Posttest		t	p	d
	M	SD	M	SD			
<i>Attribution retraining intervention</i>							
Effort attribution	4.27	1.1	4.7	1.23	-1.77	.11	-.37
Uncontrollable attribution	3.57	.9	3.66	1.1	-.19	.85	-.08
<i>Control group - Mathematics only instruction</i>							
Effort attribution	3.97	1.39	4.01	1.25	-.27	.79	-.03
Uncontrollable attribution	3.75	.85	3.67	.96	.67	.51	.09

Intervention Group

The results of the paired sample t-tests indicate that there is not a significant within-group difference between students' response to pre- and posttest scores in their reports of effortful attributions in the intervention group $t(.98) = -1.77, p = .11$. These results also indicate that there is not a significant within-group difference between students' response to pre- and posttest scores in their reports of uncontrollable attributions in the intervention group $t(.95) = -.19, p = .85$.

Control Group

These results also indicate that there is not a significant within-group difference between students' response to pre- and posttest scores in their reports of effortful attributions in the control group $t(.85) = -.27, p = .79$. These results also indicate that there is not a significant within-group difference between students' response to pre- and

posttest scores in their reports of uncontrollable attributions in the control group $t(.67) = .51, p = .09$.

Research Question 3

To what degree do students display an increase in engagement when administered treatment?

To examine whether a within-group increase in engagement occurred among students who received an attribution retraining intervention, a paired-sample t-test was completed using pretest scores on the Student Engagement Instrument and post-test scores on the same Student Engagement Instrument. Mean scores were calculated for five subscales in the areas of affective engagement (student-teacher relationships, family support for learning, peer support at school), and cognitive engagement (control and relevance of schoolwork, and future aspirations and goals). P values were adjusted with the Bonferonni adjustment and were insignificant. Results of these analyses are presented in Table 16.

Table 16. Student Engagement Instrument Mean Scores, Standard Deviations, and Paired T Tests as a Function of Instruction Condition

Measures	Pretest		Posttest		t	p	d
	M	SD	M	SD			
<i>Attribution retraining intervention</i>							
Cognitive engagement							
Future aspirations and goals	3.53	.33	3.45	.38	.89	.4	.21
Control and relevance of school work	3.27	.47	3.23	.34	.43	.68	.1
Affective engagement							
Family support for learning	3.3	.35	3.2	.44	1.08	.31	.23
Student-teacher relationships	3.22	.46	3.14	.37	.57	.58	.19
Peer support at school	3.11	.77	2.89	.54	1.04	.33	.32
<i>Control group - Mathematics only instruction</i>							
Cognitive engagement							
Future aspirations and goals	3.27	.54	3.19	.64	.67	.51	.14
Control and relevance of school work	2.96	.5	2.97	.46	-.15	.88	-.03
Affective engagement							
Family support for learning	2.93	.67	2.88	.61	.57	.57	.08
Student-teacher relationships	2.92	.54	2.89	.48	.26	.79	.05
Peer support at school	2.72	.61	2.84	.54	-1.69	.1	-.22

Intervention Group

The results of the paired sample t-tests indicate that there is not a significant within-group difference between students' response to pre- and posttest scores who received intervention in their reports of student-teacher relationships $t(.47) = .57, p = .58$, family support for learning $t(.28) = 1.08, p = .31$, peer support at school $t(.68) = 1.04, p = .33$, control and relevance of schoolwork $t(.31) = .43, p = .68$, and future aspirations and goals $t(.27) = .89, p = .4$.

Control Group

The results of the paired sample t-tests also indicate that there is not a significant within-group difference between students' response to pre- and posttest scores who were in the control group in their reports of student-teacher relationships $t(.47) = .26, p = .79$, family support for learning $t(.49) = .57, p = .57$, peer support at school $t(.4) = -1.69, p = .1$, control and relevance of schoolwork $t(.45) = -.15, p = .88$, and future aspirations and goals $t(.67) = .67, p = .51$.

Research Question 4

To what degree do students display a difference in attributions and engagement between the intervention and control group after administration of the attribution retraining intervention?

To examine whether a between-group difference in attributions and engagement exists between students who received an attribution retraining intervention and students in the control group, an independent sample t-test was completed using post-test scores

on the Student Attribution Questionnaire and Student Engagement Instrument. Results of these analyses are presented in Table 17 and 18.

Table 17. Student Engagement Instrument Mean Scores, Standard Deviations, and Independent T Tests as a Function of Instruction Condition

Measures	Intervention		Control		t	p	d
	Group		Group				
	M	SD	M	SD			
<i>Student Engagement Instrument</i>							
Cognitive engagement							
Future aspirations and goals	3.45	.38	3.19	.64	1.29	.2	.51
Control and relevance of school work	3.23	.34	2.97	.46	1.73	.09	.66
Affective engagement							
Family support for learning	3.2	.44	2.88	.61	1.61	.12	.61
Student-teacher relationships	3.14	.37	2.89	.48	1.54	.13	.58
Peer support at school	2.89	.54	2.84	.54	.26	.8	.09

The results of the independent sample t-tests indicate that there is not a significant between-group difference in students' cognitive and affective engagement between the intervention and control groups [cognitive engagement: future aspirations and goals $t(38) = 1.29, p = .2$, control and relevance of school work $t(38) = 1.73, p = .09$, affective engagement: family support for learning $t(38) = 1.61, p = .12$, student-teacher relationships $t(38) = 1.54, p = .13$, and peer support at school $t(38) = .26, p = .8$].

Table 18. Student Attribution Questionnaire Mean Scores, Standard Deviations, and Independent T Tests as a Function of Instruction Condition

Measures	Intervention		Control Group		t	p	d
	Group						
	M	SD	M	SD			
<i>Student Attribution</i>							
<i>Questionnaire</i>							
Effortful attributions	4.7	1.23	4.01	1.25	1.58	.12	.56
Uncontrollable attributions	3.66	1.1	3.67	.96	-.04	.97	-.01

The results of the independent sample t-tests indicate that there is not a significant between-group difference in students' effortful and uncontrollable attributions between the intervention and control groups intervention [effortful attributions $t(38) = 1.58, p = .12$, and uncontrollable attributions $t(38) = -.04, p = .97$].

Chapter 5

Discussion

Research supports that achievement motivation is related to several important outcomes, including task enjoyment (Mueller & Dweck, 1998; Deci & Ryan, 1985; Renninger, 2000), positive affect (Rhodewalt & Vohs, 2005), use of learning strategies (Berger & Karabenick, 2011), and measures of academic achievement (Meece, Anderman, & Anderman, 2006; Schunk & Pajares, 2005). While alternative schools and programs vary widely in the students they serve and the design of their services, in general, students enrolled in alternative schools are at particular risk for a lack of motivation and disengagement (Reyes, 2006). Alternative schools separate out at-risk, low income, and minority students from the general education setting (Reyes, 2006).

Studies of minority students suggest that negative school experiences cause many students to develop maladaptive patterns of attributions (“sense of personal control” regarding achievement) (Ross & Broh, 2000). Such negative school experiences have been shown to encourage students’ use of self-handicapping strategies and lead to disengagement from school and higher dropout rates (Midgley, Arunkumar, & Urdan, 1996; Ross & Broh, 2000).

The purpose of the present study was to examine the effectiveness of an attribution retraining intervention on a particular sample of at-risk high school students. The present study aimed to improve effortful attributions in a sample of primarily racial minority students who met one of 12 High School Graduation Initiative codes and were enrolled in an alternative school.

Summary

The results of the present study included descriptive data about the sample of students in the alternative school. Descriptive data was interesting for several reasons. First, students were normally distributed on both the Student Attribution Questionnaire and the Student Engagement Instrument. This suggests that both of these instruments are sensitive to measuring the attributions and engagement of the population of students in the alternative school. Using the Response to Intervention (RTI) framework, data from these instruments can be used to identify a portion of students who have lower attributions and engagement relative to the rest of the student population for targeted intervention (Fuchs & Fuchs, 2006). Responses on these instruments leads to the questions: Who are the students that are reporting lower effortful attributions and engagement, and do these students also have lower academic achievement?

While descriptive information was normally distributed on the Student Attribution Questionnaire and Student Engagement Instrument, overall scores on the 5-Question Educational History Survey were evenly distributed. While it was not surprising to see that these students have had negative experiences in the education system, it was surprising to see the number of students that had several negative experiences. The experimenter expected that scores on the 5-Question Educational History Survey would have been positively skewed, with most students reporting lower scores and fewer negative educational experiences. These results emphasize the differences between students in the alternative school and students in a typical general education setting.

The results of the present study also indicate that prior to intervention, the sample of students perceived effortful and uncontrollable factors as having almost the same amount of importance in academic successes and failures. Overall, students reported that

both effortful and uncontrollable factors were “somewhat important” in their educational successes and failures. This sample of students also reported being quite highly engaged overall, indicating agreement with items of cognitive and affective engagement. Students rated their cognitive engagement slightly higher than their affective engagement, although this difference was statistically insignificant. In the area of affective engagement, peer support at school was rated the lowest, suggesting that students in this sample perceive their peers as being less supportive of learning—with the overall rating being slightly less than “agree” and slightly towards “disagree.” Two other forms of affective engagement: family support for learning and student-teacher relationships, were rated higher with a response of “agree.”

Results of the present study indicate that the attribution retraining intervention was not effective on the particular sample of at-risk alternative high school students. Specifically, the attribution retraining intervention did not lead the intervention group to enhance their effortful attributions, decrease their uncontrollable attributions, or enhance their cognitive or affective engagement. After receiving the intervention, the intervention group did not differ from the control group in their attributions or engagement.

Research Questions

Do students display a difference in attributions or engagement among and between gender, age, attendance rates, enrollment code, and past educational experiences?

Research question one provided information about the attributions and engagement of students that attend the alternative school. In this case, this information was particularly interesting as little is known about students in alternative schools, and the majority of alternative schools and programs in the nation are within a student’s home

district (Lehr & Lange, 2003). Very few of these programs are administered by an outside agency, which in this case was an intermediate school district.

Results suggest that students in this alternative school do not display a difference in attributions or engagement among and between gender, age, attendance rates, enrollment code, and past educational experiences. This was a surprising finding, as each of these demographic characteristics was chosen by the experimenter with the hypothesis that these characteristics would be related to differences in attributions and engagement (Shibley Hyde & Durik, 2005; Wigfield & Wagner, 2005; Carver & Scheier, 2005).

First, age within this sample ranged from 15 to 20 years old. Typical high school settings do not cover this wide of an age range, and typically do not serve students this old—19 and 20 years. Developmentally, 15 year olds and 20 year olds are very different from each other; including the development of their prefrontal cortex and executive functioning skills (Steinberg, 2005). It is possible that older students would be more effortful and engaged in their learning, as they may be more mature and may have better executive functioning skills. It is speculated that these students may be more effortful and more engaged because they are closer to transitioning into adulthood. They may better understand the value of their education for their future as adults. However, findings did not support that students of different ages differed in their attributions or levels of engagement. In the present study, I speculate that this non-significant finding resulted from the limitation of small sample size as discussed further in the limitations section.

Attendance rates within this sample ranged from 25 to 96%, with 56% of students falling within the range of 66 to 85% attendance. Attendance is another area of great variability among students within the alternative school, and relative to a typical general

education setting. As a result, one might speculate that students with substantially different rates of attendance, particularly students with low attendance, would display different attributions and levels of engagement. Specifically, one might speculate that students with less than 85% attendance would have less effortful attributions, more uncontrollable attributions, and lower levels of engagement. However, findings did not support that students' attendance rates related to their attributions or levels of engagement. In the present study, I speculate that this non-significant finding resulted from the limitation of small sample size as discussed further in the limitations section.

Enrollment codes within this sample included High School Graduation Incentives Codes 2—student is behind in satisfactorily completing coursework or obtaining credits for graduation, 3—student is pregnant or is a parent, 5—student has been excluded or expelled, and 6—student has been referred by a school district for enrollment in an eligible program. Enrollment codes were examined as a possible source of variability in student attributions and engagement, as they are very different reasons for being enrolled in the ALC. A student who enrolls in an ALC because he or she is behind in credits, may be expected to have different perceptions of education, including attributions and engagement, relative to a student who enrolls in the ALC because he or she has been excluded or expelled. However, findings did not support that students' enrollment codes related to their attributions or levels of engagement. In the present study, I speculate that this non-significant finding resulted from the limitation of small sample size, as well as the lower representation of students enrolled for being excluded or expelled by their previous school as discussed further in the limitation section.

Past educational experiences were explored through five different questions: (1) Have you ever been suspended, expelled, or held back a grade in school? (2) Have you had difficulty attending school any times throughout the years? (3) Do you consider yourself to have moved between more schools than the average student? (4) Overall, do you feel like school teachers and staff have **NOT** cared about you through the years? And (5) Have you ever thought of yourself as a “bad kid”? Past educational experiences such as these were speculated to be another source of variability in the sample of students in the current study. The experimenter viewed students who reported having these experiences as having risk factors for poor educational outcomes. As a result, it was hypothesized that students with a greater number of these experiences would be more likely to have less effortful attributions, greater uncontrollable attributions, and lower levels of achievement (Masten, 2013).

Results indicated that the number of these experiences these students had did not relate to differences in attributions and engagement. In the present study, it is speculated that this non-significant finding resulted from the limitation of small sample size as discussed further in the limitations section.

To what degree do students display an increase in effortful attributions when administered an attribution retraining intervention? To what degree do students display an increase in engagement when administered an attribution retraining intervention treatment?

A within-group analysis using paired sample t tests indicate that students did not display an increase in effortful attributions, a decrease in uncontrollable attributions, or an increase in cognitive or affective engagement when they received the attribution

retraining intervention. Results indicated that effortful attributions, uncontrollable attributions, and cognitive and affective engagement all remained almost the same from pretest to post-test. Notably, uncontrollable factors were rated as being almost as important as effortful attributions, both prior to and after the intervention. This differs from a previous study with a similar attribution retraining intervention which reported a significant decrease in uncontrollable attributions post intervention (Horner & Gaither, 2004). There are several possible reasons for the lack of change in attributions and engagement in the current study, discussed in the limitations section below.

To what degree do students display a difference in attributions and engagement between the intervention and control group after administration of the attribution retraining intervention to the intervention group?

A between-group analysis using independent sample t-tests indicate that there is not a significant difference in students' effortful and uncontrollable attributions, or their cognitive and affective engagement after the intervention group received the attribution retraining intervention. It was hypothesized that uncontrollable attributions would be lower in the intervention group after administering the attribution retraining intervention. It was also hypothesized that effortful attributions, as well as cognitive and affective engagement would be higher in the intervention group after administering the attribution retraining intervention.

Synthesis

Findings from within-group and between-group analyses did not support the original hypotheses. First, ALC students in the entire sample were hypothesized to have lower effortful attributions, and cognitive and affective engagement on the pre-test than

the results indicated. The experimenter hypothesized this due to greater rates of negative educational experiences and lower academic achievement of ALC students compared to a general education setting. Having a greater number of risk factors has been shown to lead to negative educational outcomes (Masten, 2013).

Results indicate that students in the ALC give equal credit to effort and such uncontrollable factors as luck. It is speculated that the real challenge for these students may relate less to their value of effort and more to their value of uncontrollable factors. Why is it that these students give so much credit to factors beyond their control?

It is speculated that one potential reason for their uncontrollable attributions results from a history of putting forth effort and failing, both in the school and community environments. Students become enrolled in an ALC because their home districts feel they no longer belong with students who are succeeding in that environment. Does this contribute to the perceived amount of control that students have over their educational outcomes? How does an educator of ALC students convince these students that effort matters? What strategies are effective in linking student effort to improved outcomes for these students? For example, increased use of formative assessment strategies may allow alternative school students to better connect their effortful behaviors with increased mastery of skills.

A history that lacks a cycle of effort and achievement is speculated to lead to a lack of insight about effort. These students may not have a true understanding of effort as it is defined by their teachers. Teachers may explicitly define acceptable classroom behaviors, such as using respectful language and remaining seated during class; however, they may not explicitly define expected effortful behavior. This may explain why

students in the current study report the importance of effort, but frequently struggle to complete work, pass classes, and graduate. This leads to the question: How do these students define effort? Does their definition of effort differ from that of their teachers? Does their definition of effort differ from peers in a general education setting? This also leads back to the introduction section of the current study—frequent reports from teachers indicate that students “don’t take responsibility.” Students who perceive themselves as having little or no control over their progress will likewise deny their role in their lack of progress (Abramson, Seligman, & Teasdale, 1978).

What is the likelihood that students with a history of disadvantage and failure in the school and community learn to cope by reporting accepted beliefs about learning? Students in the current study report being engaged. Their self-perceptions of their own engagement are high, yet many report that their peers are not supportive of learning. It is speculated that these students perceive their engagement and effort as higher than what other students and staff perceive it to be. Is it possible that this is a coping mechanism that these students have used for years to feel a sense of comfort and belonging in school? Or, is it possible that students who are surrounded by other behaviorally, cognitively and affectively disengaged students have greater difficulty identifying their own disengagement and lack of effort? For example, a student who attends school three days a week may believe he or she is an engaged student, because many other students only attend once or twice a week. It is speculated that peer disengagement may also lead students to perceive their engagement and effort as higher than what other students and staff perceive it to be (Hymel, Comfort, Schonert-Reichl, & McDougall, 1996).

Limitations

An important limitation of the current study may be sample size. The sample size in the current study was small, with only 41 students total completing the pretest and 40 students completing both the pretest and post-test. Only 11 of these students comprised the intervention group and 29 students comprised the control group at the end of the data collection period. According to Cohen (1992), for a t test or ANOVA with two groups for power of .80 with a large effect size and $\alpha = .05$, the necessary sample size per group is 26. In addition, because the experimenter could not randomly assign individual participants to treatment or control group, the unit of analysis was at the classroom level. There may have been too few classrooms included in the current study.

Limitations of the current study may also include the low dosage of intervention which may have been too low to effect student attributions and engagement. The intervention in the current study was based off of the attribution retraining intervention in Horner and Gaither (2004). In this study, the intervention was administered to 2nd grade students in a typical school setting. It was administered for a total of 8 days, and did not include direct teaching of causal attributions and their effect on learning. A consideration is that high school students have more stable attributions and therefore need longer, sustained intervention. This is particularly true for a sample of students that have had a history of educational failure, and other risk factors in the home, school, and community that lead to an increase in negative educational outcomes (Ross & Broh, 2000). A consideration is that this sample might see enhanced effortful attributions and engagement, and decreased uncontrollable attributions with an intervention that was longer in duration and more intensive in the methods in which it was delivered. For example, it is possible that an effect would be seen with the implementation of an

attribution retraining intervention that is delivered multiple or all class periods of the day for several months.

In the current study, a limitation may be that only two teachers and the experimenter delivered the intervention. This may be a limitation as students' relationships with these staff members may have impacted the effectiveness of the intervention.

Additionally, a limitation of the current study may be that the intervention was delivered only in math classes. It is possible that students have more stable attributions about math tasks in general. It is also possible that the students in this sample have experienced more failure in math in the past, and they have more stable attributions in math as a result.

Another limitation of the current study may be the content of the intervention. It is possible that changes to the content of the intervention used in the current study, which included an experimenter-led presentation and daily discreet teaching, would lead to a different outcome with this sample of students.

Future Directions

Results from the current study suggest that the attribution retraining intervention used herein should not be used with a similar sample of students without addressing the limitations discussed above.

Future studies examining alternative school students must address data collection sample size with low rates of enrollment and attendance. Similarly, any intervention studies must address how to provide adequate treatment dosage to students with low attendance and many risk factors for poor educational outcomes.

In the current study, while effortful attributions were fairly high prior to intervention, it is notable that uncontrollable attributions were also fairly high. Future studies might consider if more focus is needed on decreasing negative attributions for students with a history of educational failure and increased risk factors.

Future studies might consider increasing the intensity of the intervention beyond one math class per day by providing it in all subject areas in all classes by all instructors throughout the day. Strategies to change students' causal attributions could be applied within other school-wide programs such as Positive Behavior Interventions and Supports (Sugai et al., 2000) and Restorative Justice (Zehr, Mika, & Umbreit, 1997), specifically by promoting effortful attributions regarding students' achievement and behavior in school.

Conclusion

The present study adds to the evidence for the importance of examining alternative schools as a learning context, as well as the unique students within them. It explores student characteristics, including attendance rates and reasons for their enrollment in an alternative school. It provides preliminary evidence on the effectiveness of attribution retraining as an intervention. Results of the present study suggest that, while similar interventions have been successful with younger students in a typical general education setting, those effects were not seen with this sample of high school level alternative school students, at risk for failure to graduate. However, interventions that specifically target the uncontrollable attributions of students in alternative schools may enhance their achievement motivation and academic achievement. Interventions that

are more intensive and address attributions throughout the school day in different subject areas by all teachers may enhance achievement motivation and academic achievement.

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Appendix A

Review of Attribution Retraining Studies

Outcomes Examined after Attribution Retraining

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
Muelle r & Dweck (1998)	128 5 th graders, 49% from a small Midwest ern town	X	X		X	X			X	

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	and 51% from a large northeast ern city									
Berkel ey (2007)	63 7 th , 8 th , and 9 th graders with	X		X		X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	learning disabiliti es									
Craske (1988)	29, 4 th , 5 th , and 6 th graders	X				X				
Mirand a, Villaes	60 students with LD,	X		X		X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
cusa, Vidal- Abarca (1997)	20 without disabiliti es; all 5 th and 6 th graders									
Okolo (1992)	29 students with LD, 7 th and	X	X			X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	8 th graders, urban setting									
Craske (1985)	65 5 th and 6 th graders		X							
Berkel ey, Mastro	59, 7 th , 8 th , and 9 th	X				X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n T a s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
pieri, & Scrugg s (2011)	graders with LD in a metropol itan area									
Horner & Gaither (2004)	48 2 nd graders with no disabiliti es,	X				X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	predomi nantly African America n and low SES									
Esser (2002)	110 African America n 6 th and	X		X		X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	7 th graders. 80 of these students had LD, 30 did not have disabiliti es									

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
Ziegler & Heller (2002)	164 female 8 th graders whose IQ was at least one standard deviation	X				X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n i n g	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	above average									
Laffoo n, Jenkins - Friedm an, & Tollefs on	21 underach ieving- gifted, achievin g-gifted, and nongifte	X								

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
(1989)	d 3 rd , 4 th , and 5 th graders									
Chapm an & Lawes (1987)	388 5 th graders	X								
McInty re (1993)	43 7 th and 8 th graders		X			X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n T a s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	with LD identifie d as learned helpless									
Curtis (1992)	52 Physical Therapis ts (adults)	X				X	X			

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
Jenson (1992)	88 undergra duate college students	X						X		
Sander s (1989)	64 6 th grade minoritie s in an urban	X				X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	setting									
Oliver (1989)	80 elementa ry students; 40 with LD; 40 without LD					X				
Brown	Element	X	X			X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
(1988)	ary school students									
Wilson (1986)	28 underach ieving 5 th graders ages 10- 13	X	X			X				
Meyer	30 4 th	X	X							

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
& Dyck (1986)	and 5 th graders with reading difficulti es									
Fluegel (1985)	28 2 nd – 5 th graders with LD		X			X	X	X*		X*

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
Kennel ly, Dietz, & Benson (1985)	35 males age 9-15 receiving special educatio n services and consider ed	X	X					X		

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	learned helpless									
Rubin (1983)	60 elementa ry school children	X	X							
Fowler & Peterso n	28 4 th , 5 th , and 6 th graders	X	X							

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
(1981)	identifie d as learned helpless and below grade level in reading; rural,									

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	middle class commun ity									
Brock (1980)	28 elementa ry students with LD identifie	X	X			X	X			

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	d as learned helpless									
Andre ws & Debus (1978)	159 6 th graders in an urban setting	X	X							
Chapin &	30 5 th , 6 th , and		X							

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
Dyck (1976)	7 th graders with reading difficulti es									
Dweck (1975)	12 8-13 year olds, describe	X				X				

Study	Sample	Dependent Variables:								
		Attrib- utions	Persist- ence	Learni ng Strat- egies	Tas k Enj oy me nt	Perf or- man ce	T i m e o n e s s k	Self- Effic acy	Subse quent Infor matio n Seeki ng	Pe rce ive d Eff ort an d Fr ust rat ion
	<p>d as having “extreme reactions to failure” accordin g to teachers</p>									

* Perceptions of teachers and students as measured by a rating scale

The meta-analysis yielded a total of 28 studies on attribution retraining. The dependent variables examined in these studies were: attributions (N = 23), persistence (N = 14), learning strategies (N = 3), task enjoyment (N = 1), performance (N = 18), time on task (N = 2), self-efficacy (N = 4), subsequent information seeking (N = 1), and perceived effort and frustration (N = 1). These results suggest that there is a lack of information on the teacher's role in attributional feedback and attribution retraining.

Only one study, a dissertation, did examine the effects of attribution retraining on both teacher and student perception of effort, frustration, and self-efficacy (Fluegel, 1985). The 3-week intervention consisted of a combination of attribution retraining (daily), relaxation training (daily), and rewards for improvement in performance (weekly). The intervention resulted in a significant increase in student and teacher perception of effort and self-efficacy.

No studies examined attributions with high school level students. One student used up to 15-year old children, but no studies used a sample of 9 – 13 grades.

No studies examined attributions for students in alternative schools.

Appendix B

Teacher Training Materials

Effort Praise

Carol Dweck

Praising children's intelligence harms their motivation and it harms their performance. Educators and parents should keep away from praise that judges the child's intelligence or talent. They also should keep away from praise that implies that they're proud of the child for their intelligence or talent rather than for the work they put in. Praise should be focused on what the child accomplished through practice, study, persistence and hard work.

Listen for the messages in the following examples:

"You learned that so quickly! You're so smart!"
"Look at that drawing. Martha, is he the next Picasso or what?"
"You're so brilliant, you got an A without even studying!"

If you're like most parents, you hear these as supportive, esteem-boosting messages. But listen more closely. See if you can hear another message. It's the ones that children hear:

"If I don't learn something quickly, I'm not smart."
"I shouldn't try drawing anything hard or they'll see I'm no Picasso."
"I'd better quit studying or they won't think I'm brilliant."

Instead of praising children's intelligence or talent, focus on the processes they used.

- Example: "That homework was so long and involved. I really admire the way you concentrated and finished it."
- Example: "That picture has so many beautiful colors. Tell me about them."
- Example: "You put so much thought into that essay. It really makes me think about Shakespeare in a new way."

Janine Bempechat

What parents and educators need to do:

- Let children know that they are bound to fail if they avoid mistakes
- Praise the process your child has gone through to produce her final work
- Encourage your child to opt for challenging assignments over easy ones
- Teach your child that disciplined effort makes all the difference in learning

- Emphasize that purposeful effort—effort that is planned—will make all the difference in improving study skills and therefore grades
- Keep your children from ruminating endlessly about a bad grade. Focus their attentions on learning from their mistakes and moving forward to prepare for the next test or assignment
- Focus on learning as a process, and effort as the means to learn
- Show pride in your children’s progress: focus their attentions on how their knowledge and understanding has grown over time

Example Scenario:

Andrew: I’m so stupid!

Sam (his father): Why do you say that?

Andrew: Because Max always gets A’s on everything. He’s so much smarter than I am.

Sam: So you think you’re stupid because Max always gets A’s?

Andrew: Well, duh, that’s what I just said.

Sam: Lip from you, I don’t need. So why do you think Max always gets A’s?

Andrew: Because he’s really smart. Everything is so easy for him—it’s not fair...

Sam: Did it ever occur to you that Max works harder than you do? How many times in the past month have you panicked because you realized you had a big project due the next day? Do you think that doing the work in a couple of desperate hours might have something to do with the grades you’re getting?

Andrew: Maybe...

Sam: And what about the fabulous paper you did on Maya Angelou? Was that a stroke of luck?

Andrew: No way! I worked really hard on that one—I even turned it in early, remember?

Sam: Ah...so instead of fussing about Max’s A’s, maybe you can let us help you get organized so every project goes as well as the poetry one.

Andrew: Ok, Ok already.

EFFORT PRAISE

HOW PARENTS CAN USE:

Praising children's intelligence harms their motivation and it harms their performance. Parents should keep away from praise that judges the child's intelligence or talent. They should also keep away from praise that implies they're proud of the child for their intelligence or talent rather than for the work they put in. Praise should be focused on what the child accomplished through practice, study, persistence and hard work.

The following are some example of what parents should and should not say to their children:

Parents should not say:

- "You learned that so quickly! You're so smart!"
- "You're so brilliant, you got an A without even studying!"

Instead of praising children's intelligence or talent, focus on the processes they used:

- "That homework was so long and involved. I really admire the way you concentrated and finished it."
- "That picture has so many beautiful colors. Tell me about them."
- "You put so much thought into that essay. It really makes me think about Shakespeare in a new way."

HOW EDUCATORS CAN USE:

- Let students know that they are bound to fail if they avoid mistakes
- Praise the process your student has gone through to produce his/her final work
- Encourage your student to opt for challenging assignments over easy ones
- Teach your student that disciplined effort makes all the difference in learning
- Emphasize that purposeful effort—effort that is planned—will make all the difference in improving study skills and therefore grades
- Keep your student from ruminating endlessly about a bad grade. Focus their attentions on learning from their mistakes and moving forward to prepare for the next test or assignment
- Focus on learning as a process, and effort as the means to learn

- Show pride in your student’s progress: focus their attentions on how their knowledge and understanding has grown over time

COMMON SITUATIONS:

What parents and educators should say when confronted with these common situations:

1. Child gets a good grade:
 - “I’m impressed with how much work you put into this project”
 - “You really put a lot of effort into this”
2. Last minute studying:
 - “Up until now you’ve been pulling average grades because you wait until the last minute to start projects/homework/studying. You’ve relied on luck to pull you through and you can’t count on luck. If you want to improve your grades, you need to put more effort in your studying. Maybe you can let me help you get organized so you start studying earlier and make better use of your time”
3. Homework:
 - “That homework was so long and involved. I really admire the way you concentrated and finished it”
4. Takes on challenging tasks:
 - “I like that you took on that challenging project for your ___ class. It will take a lot of work. You’re going to learn a lot of great things”
5. Child worked hard but didn’t do well:
 - “I liked the effort you put in, but let’s work together some more and figure out what it is you don’t understand”
 - “We all have different learning curves. It may take more time for you to catch on to this and be comfortable with this material, but if you keep at it like this you will”
 - “Everyone learns in a different way. Let’s keep trying to find the way that works for you”

Resources:

Bempechat, J. (2000). *Getting our kids back on track*. San Francisco: Jossey-Bass Inc.

Dweck, C.S. (2006). *Mindset*. New York: Random House.

Appendix C

Attribution Retraining Intervention (Adapted from Horner & Gaither, 2004).

Attribution Retraining will occur each class period, every day for two weeks (10 days).

Step 1: You, the teacher, will review a specific math strategy. Sometime while you are reviewing the math strategy, you will display 1 math problem on the board with incorrect answer.

Step 2: Have students answer why you, as the teacher, solved the problem incorrectly. Ask your students, “Did I lack effort? Did I lack the ability? Was the problem too difficult? Or was I unlucky?” Explain that you did not use the right strategy, and therefore you need to put forth more *effort*.

Step 3: Redo the problem, correctly this time, with self-talk aloud that focuses on thinking and putting forth effort in order to use the correct strategy. For example, “Okay, I really have to think hard this time. I have to put forth effort to use the strategy correctly.” “This is hard but if I try I will understand the strategy.”

Step 4: For the rest of the math lesson, encourage students to consider why they get correct or incorrect answers, both when they respond to instruction or do independent work. For example, while allowing students to respond to your instruction, respond to their answers by saying, “That is correct/incorrect. Why did you get the correct/incorrect

answer? Was it due to effort? How smart you are? Because of how difficult the problem is? Were you lucky/unlucky?” Confirm that they are right when they make effort attributions. Correct them when they make incorrect attributions about ability, luck, or problem difficulty.

For an example of independent work time, walk around the room checking answers and saying, “This is correct/incorrect. Why did you get the correct/incorrect answer? Was it due to effort? How smart you are? Because of how difficult the problem is? Were you lucky/unlucky?” Confirm that they are right when they make effort attributions. Correct them when they make incorrect attributions about ability, luck, or problem difficulty.

Appendix D

Student Attribution Questionnaire (SAQ) Adapted from Newman and Stevenson

(1990) and Horner and Gaither (2004)

Attribution Questionnaire

Adapted from Newman & Stevenson (1990).

DIRECTIONS: Please answer the following questions. If you come to a word you do not know, or if you do not understand what one of the questions is, ask the teacher.

1. Think about a time you passed a *math* test. How important was each factor below in passing the test?

(a) "I am smart in math,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(b) "My teacher helped me learn the math"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(c) "I like math a lot"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(d) "I studied very hard for the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(e) "The test was easy,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(f) "I was feeling real good at the time I took the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(g) "I knew how to do the kinds of problems that were on the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(h) "I just got lucky in answering the questions correctly."

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Think about a time you failed a math test. How important was each factor below in passing the test?

(a) "I am smart in math,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(b) "My teacher helped me learn the math"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(c) "I like math a lot"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(d) "I studied very hard for the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(e) "The test was easy,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(f) "I was feeling real good at the time I took the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(g) "I knew how to do the kinds of problems that were on the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(h) "I just got lucky in answering the questions correctly."

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Think about a time you passed a reading test. How important was each factor below in passing the test?

(a) "I am smart in reading,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(b) "My teacher helped me learn the reading?"

Not at all Important 1	2	3	Somewhat Important 4	5	6	Very Important 7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(c) "I like reading a lot"

Not at all Important 1	2	3	Somewhat Important 4	5	6	Very Important 7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(d) "I studied very hard for the test,"

Not at all Important 1	2	3	Somewhat Important 4	5	6	Very Important 7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(e) "The test was easy,"

Not at all Important 1	2	3	Somewhat Important 4	5	6	Very Important 7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(f) "I was feeling real good at the time I took the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(g) "I knew how to answer the kinds of questions that were on the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(h) "I just got lucky in answering the questions correctly."

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Think about a time you failed a reading test. How important was each factor below in passing the test?

(a) "I am smart in reading,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(b) "My teacher helped me learn the reading"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(c) "I like reading a lot"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(d) "I studied very hard for the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(e) "The test was easy,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(f) "I was feeling real good at the time I took the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(g) "I knew how to do the kinds of problems that were on the test,"

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(h) "I just got lucky in answering the questions correctly."

Not at all Important			Somewhat Important			Very Important
1	2	3	4	5	6	7
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix E

Student Engagement Instrument (Appleton, Christenson, Kim, and Reschly, 2006).

Student Engagement Survey

MARKING INSTRUCTIONS	
<ul style="list-style-type: none"> • Use a No. 2 pencil only. • Do not use ink, ballpoint, or felt tip pens. • Make solid marks that fill the response completely. • Erase cleanly any marks you wish to change. • Make no stray marks on this form. 	<p>INCORRECT: ✗ ✘ ☹ ☹</p> <p>CORRECT: ●</p>

Strongly Agree Agree Disagree Strongly Disagree

EXAMPLE: Students at my school listen to me.	1	2	3	4
1. What I learn at school is important to know.	1	2	3	4
2. There's at least one adult in this school I can talk to if I have a problem.	1	2	3	4
3. Going to school after high school is important.	1	2	3	4
4. I will get a higher grade by being nice to my teacher than by finishing my schoolwork.	1	2	3	4
5. My education will create many future opportunities for me.	1	2	3	4
6. Most of the time I am capable of doing the work that school subjects require of me.	1	2	3	4
7. When I can't do the work, I know how to get help.	1	2	3	4
8. I plan to continue my education following high school.	1	2	3	4
9. When I do well in school it's because I work hard.	1	2	3	4
10. When I have problems at school my family/guardian(s) are willing to help me.	1	2	3	4
11. I feel like I have a say about what happens to me at school.	1	2	3	4
12. My family/guardian(s) want me to keep trying when things are tough at school.	1	2	3	4
13. What I'm learning in my classes will be important in my future.	1	2	3	4
14. My decisions influence what happens to me at school.	1	2	3	4
15. Most of what is important to know you learn outside of school.	1	2	3	4
16. Most of what is important to know you learn in school.	1	2	3	4
17. Overall, adults at my school treat students fairly.	1	2	3	4
18. When I do well in school it's only because I learn easily.	1	2	3	4
19. My friends think school is important.	1	2	3	4
20. My school allows me to use my own learning style (what helps me learn best).	1	2	3	4
21. I enjoy learning.	1	2	3	4
22. School is important for achieving my future goals.	1	2	3	4
23. I could get involved in more extracurricular (after school) activities at school if I wanted to.	1	2	3	4
24. The school rules are fair.	1	2	3	4
25. I'll learn, but only if the teacher gives me a reward.	1	2	3	4
26. The tests in my classes do a good job of measuring what I'm able to do.	1	2	3	4
27. I feel like a part of my school.	1	2	3	4
28. Most teachers at my school are interested in me as a person, not just as a student.	1	2	3	4
29. I like my family/guardian(s) to help with some of the decisions I make about school.	1	2	3	4
30. I have some friends at school.	1	2	3	4
31. Sometimes it's good to put off what I want to do in order to work on things I should do.	1	2	3	4
32. Overall, I feel that my teachers expect me to learn a lot.	1	2	3	4

Appendix F

5 Questions about Educational History

Please answer "yes" or "no" to the following questions:

1. Have you ever been suspended, expelled, or held back a grade in school?
2. Have you had difficulty attending school any times throughout the years?
3. Do you consider yourself to have moved between more schools than the average student?
4. Overall, do you feel like school teachers and staff have **NOT** cared about you through the years?
5. Have you ever thought of yourself as a "bad kid"?

Appendix G

Experimenter-Delivered Attribution Retraining Intervention

